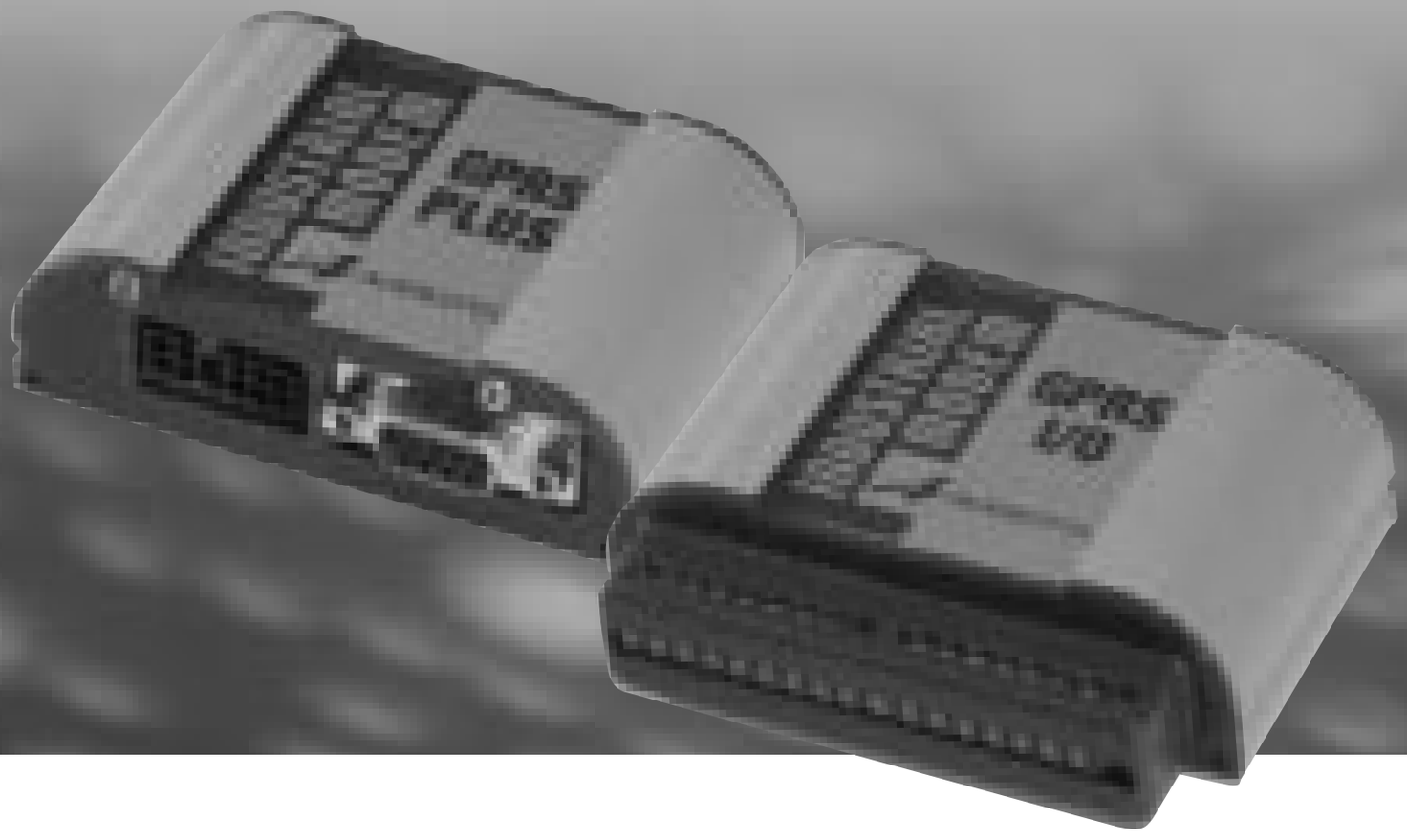
AUDIOTEL
the wireless technology

INDUSTRIAL
GSM-GPRS

MANUALE DI INSTALLAZIONE
INSTALLATION MANUAL
MANUAL DE INSTALACIÓN



QUESTO MANUALE È VALIDO PER I PRODOTTI INDUSTRIAL MODEM GSM/GPRS NELLE VERSIONI:

- BASE - PLUS - I/O

DICHIARAZIONE DI CONFORMITÀ

AUDIOTEL Engineering S.p.A. - Via del Chioso, 6 - 24030 Mozzo (BG) Italia

Dichiara sotto la propria responsabilità che il prodotto:

INDUSTRIAL MODEM GSM/GPRS

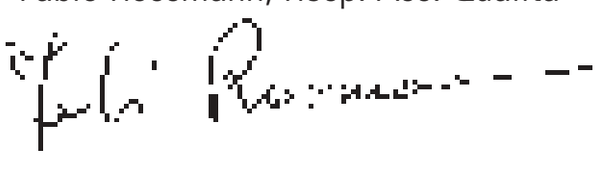
è conforme con le normative vigenti in relazione alla direttiva R&TTE 99/5/CE ed in particolare alle seguenti norme:

Health and Safety	(Art. 3.1 a):	**EN60950**
EMC	(Art. 3.1 b):	**ETS 301 489-1, ETS 301 489-7**
RF spectrum efficency	(Art. 3.2):	**3GPP TS 51.010-1, v4.2.0 (GSM 11.10-1), Draft ETSI EN 301 511, v7.0.0 (GSM 13.11).**

CE 0681

Data: febbraio 2003
Luigi Caroli, Direttore Tecnico

Data: febbraio 2003
Fabio Rossmann, Resp. Ass. Qualità



In particolare il prodotto è stato approvato in conformità ai seguenti standard:

ETS 301 511	*Global System for Mobile communications (GSM); Harmonized EN for mobile stations in the GSM 900 and GSM 1800 bands covering essential requirements of article 3.2 of the R&TTE directive (1999/5/EC)*
ETS 301 489-1	*Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements*
ETS 301 489-7	*ElectroMagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 7: Specific conditions for mobile and portable radio and ancillary equipment of digital cellular radio telecommunications systems (GSM and DCS)*
- clausole 9.1	*RF electromagnetic field*
- clausole 9.2	*Electrostatic discharge*
- clausole 9.3	*Fast transients, common mode*
- clausole 9.4	*RF common mode 0,15-80MHz*
- clausole 9.5	*Transient and surge, vehicular environment*
- clausole 9.6	*Voltage dips and interruptions*
- clausole 9.7	*Surge, common and differential mode*
EN55022	*Conducted and radiated interference*
EN61000-4-2	*Electrostatic discharge*
EN61000-4-3	*RF electromagnetic field*
EN61000-4-4	*Fast transients, BURST*
EN61000-4-5	*Surge*
EN61000-4-6	*Radio frequency common mode AM*
EN61000-4-11	*Voltage dips, interruptions and fluctuations (AC power)*
EN60950 (LVD)	

AVVERTENZE GENERALI

Il prodotto può essere impiegato esclusivamente per l'uso per il quale è stato concepito e costruito. Qualsiasi altra forma di impiego è da considerarsi a totale responsabilità dell'utilizzatore. La messa in funzione, deve essere eseguita solamente dopo una corretta installazione, pertanto l'utilizzatore deve provvedere ad effettuare con cura tutte le operazioni descritte nel manuale in dotazione al prodotto.
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Gli apparati utilizzano lo standard GSM/GPRS per la telefonia cellulare; sono quindi utilizzabili in zone che si trovino nell'area di copertura del sistema stesso con una SIM di gestore compatibile.
Dato che il sistema GSM/GPRS è una tecnologia a radiofrequenza (RF), vi possono essere interferenze in presenza di altri apparecchi elettrici o problemi nel funzionamento di dispositivi elettronici. Nel caso si usi un'antenna direttamente montata sul prodotto, esso deve essere installato in luogo libero e ad almeno 2 metri di distanza da qualsiasi apparato elettrico o elettronico.
L'utilizzatore è tenuto al rispetto delle normative vigenti; in particolare è vietato l'uso degli apparati:

- In aereo.
- In ospedali e centri di cura.

- Nelle vicinanze di distributori di carburante o dove sia presente un pericolo di esplosione.
- Nei siti dove si opera con agenti chimici in genere, e con particolare attenzione alle norme di sicurezza per ambienti saturi (o potenzialmente saturi) di gas o esalazioni volatili.
- In luoghi dove siano in corso operazioni di detonazione.
- Nei pressi di apparati elettromedicali, compresi sistemi di ausilio personali come: pacemakers e apparecchi elettroacustici (hearing aids).
- In ambienti con elevato grado di umidità.

GARANZIA

Questo prodotto è garantito contro eventuali difetti dei materiali e della lavorazione per un periodo di 24 mesi dalla data di acquisto. La garanzia non copre difetti dovuti a:

- Uso improprio ed incuria.
- Danni provocati da agenti atmosferici.
- Atti vandalici.
- Materiale soggetto ad usura

Audiotel Engineering S.p.A. si riserva, a sua esclusiva discrezione il diritto di riparare o sostituire i prodotti ritenuti difettosi. La garanzia si considera decaduta quando il guasto è indotto da un uso improprio o da una procedura operativa non contemplata nel manuale di utilizzo. Per il dettaglio delle condizioni di garanzia e per il modulo RMA fare riferimento al materiale disponibile sul sito internet di Audiotel.

CARATTERISTICHE FUNZIONALI

- Modem Dual Band 900/1800MHz GSM
- Servizi Dati, SMS, Voce e Fax
- Controllo con comandi AT (standard ETSI GSM 07.05 e 07.07)
- Potenza d'uscita: 2W per GSM900 / 1W per GSM1800
- Alimentazione: 8V - 32Vcc
- Assorbimento: 20mA Idle @ 12V, 150mA 900MHz @ 2W, 130mA 1800MHz @ 1W
- Range di temperatura: operativo da -20°C a +55°C, stoccaggio da -40°C a +85°C, senza condensazione

PRESTAZIONI GSM

- VOCE: fonia e chiamate di emergenza (TCH/FS)
- SMS: modalità MT/MO/CB/PDU
- DATI: modalità di trasmissione dati GSM asincrona, modo non trasparente (RLP) (2400, 4800, 9600 bit/s), CSD fino a 14.4Kbps, USSD, V.110
- FAX: gruppo 3 (classe1, classe 2)

CONNETTIVITÀ GPRS (*)

- GPRS MULTISLOT classe 8 (4+1)
- GPRS MOBILESTATION classe B
- Max 85.6 Kbps (downlink)
- Schemi di codifica CS1, CS2, CS3, CS4
- Stack PPP

(*) Disponibile solo per il modello GPRS

CARATTERISTICHE MECCANICHE

- Dimensioni: 55x80x24mm (vers. BASE e PLUS)
- Dimensioni: 70x80x24mm (vers. I/O)
- Peso: 120gr circa
- Elementi per fissaggio a parete, guida DIN e guida OMEGA
- Possibilità di fissaggio diretto su PCB

DESCRIZIONE DELLE INTERFACCE

TIPO DI INTERFACCIA	MODEM		
	BASE	PLUS	I/O
Connettore DB9 fem. per porta seriale RS232 (DCE)	✓	✓	–
Connettore MICROFIT 4 poli	✓	✓	–
Connettore MICROFIT 6 poli	✓	✓	–
Morsettiera a 18 posizioni	–	–	✓
Connettore d'antenna esterna SMA femmina	✓	✓	✓
Lettore di carte SIM plug-in	✓	✓	✓
Led con funzione di indicatore dello stato del modem	✓	✓	✓

DOTAZIONI

- Modem GSM/GPRS
- Cavo di alimentazione (non fornito per versione I/O)
- Supporto da muro + adattatore guide DIN e OMEGA
- Il presente manuale

CARATTERISTICHE SPECIFICHE INDUSTRIAL BASE

- Interfaccia dati DB9
  V.24/RS232 (tutti i segnali DCE)
- Connettore Microfit 4 poli
  Alimentazione, IGN e PDN
- Connettore Microfit 6 poli
  Fonia e SYNC
- Comandi AT
  V.25/ter + Siemens proprietary

CARATTERISTICHE SPECIFICHE INDUSTRIAL PLUS

- Microcontrollore embedded
  8-bits RISC uC @8 MIPS 2Mb data_flash e 64Kb SRAM
- Interfaccia dati DB9
  V.24/RS232 (tutti i segnali DCE)
- Connettore Microfit 4 poli
  Alimentazione e I2Cbus
- Connettore Microfit 6 poli
  Fonia
- Stack TCP/IP
  WebServer, HTTP, FTP, SMTP e DHCP, TCP, IP, ARP, UDP, ICMP e PPP
- Comandi AT
  V.25/ter + Siemens proprietary + Audiotel proprietary
  (comandi orientati a TCP/IP e manutenzione)
- Collezione API

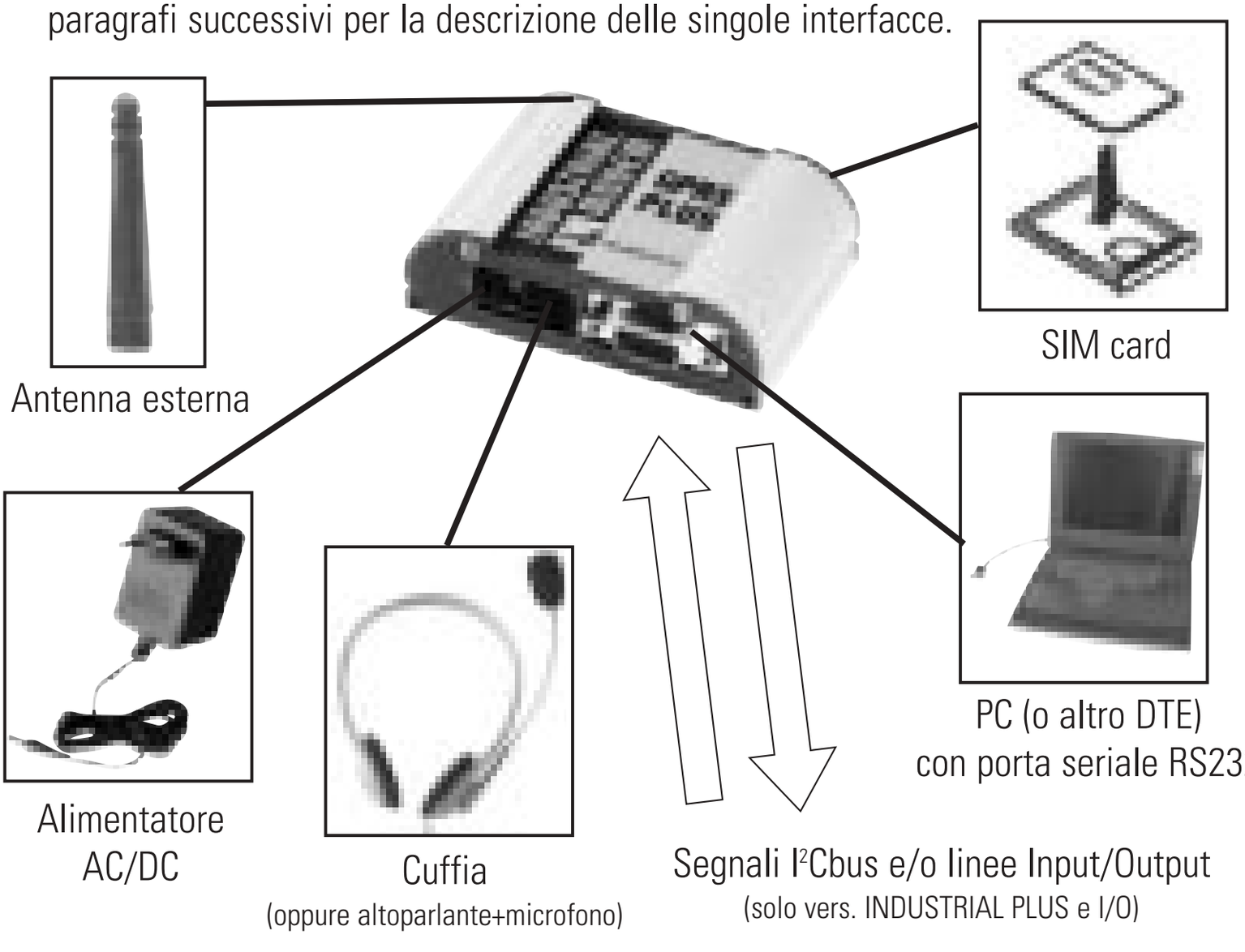
Kernel Multitasking (RTOS), interfacce seriali (V.24 e I2Cbus), completa gestione funzioni GSM/GPRS, utilities (misure RF, gestione profili funzionali), IP Suite (application & sockets layers)

CARATTERISTICHE SPECIFICHE INDUSTRIAL I/O

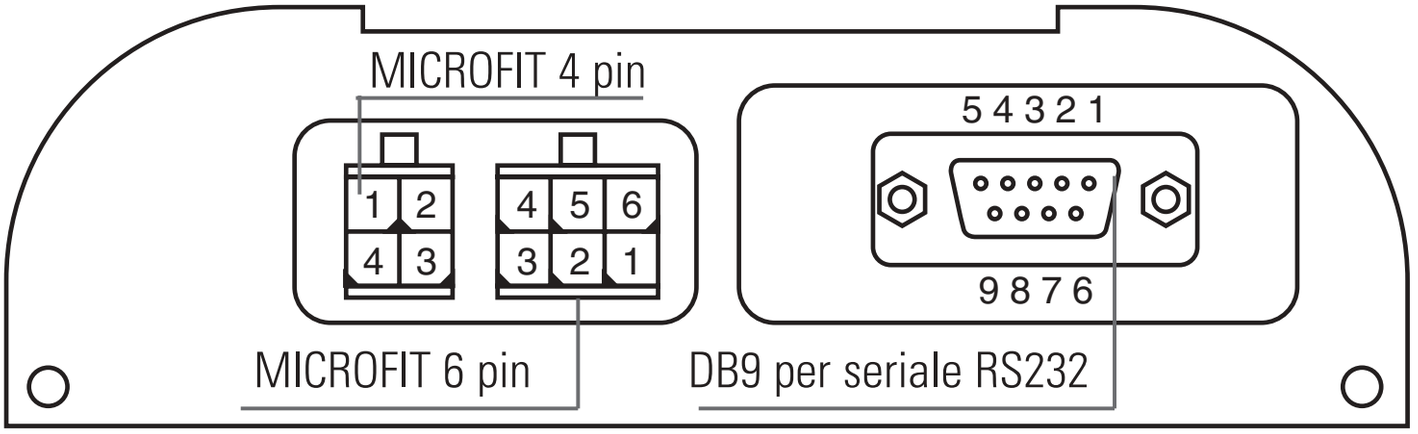
- Microcontrollore embedded
  8-bits RISC uC @8 MIPS 2Mb data_flash e 64Kb SRAM
- Morsettiera 18 posizioni
  Alimentazione, fonia, 2 ingressi optoisolati (15-50Vac/dc), 2 uscite optoisolate (30Vcc 1A – 10Vrms 350mArms), I2Cbus, V.24/RS232 (RTS, CTS, TX, RX)
- Stack TCP/IP
  WebServer, HTTP, FTP, SMTP e DHCP, TCP, IP, ARP, UDP, ICMP e PPP
- Comandi AT
  V.25/ter + Siemens proprietary + Audiotel proprietary (comandi orientati a TCP/IP e manutenzione)
- Collezione API
  Kernel Multitasking (RTOS), interfacce seriali (V.24 e I2Cbus), completa gestione funzioni GSM/GPRS, utilities (misure RF, gestione profili funzionali), IP Suite (application & sockets layers)

INSTALLAZIONE

Per installare e rendere operativo il modem è necessario dotarsi di una scheda SIM card, di una fonte di alimentazione in corrente continua (8-32V), di un'antenna esterna, di un personal computer (o altro DTE) dotato di porta seriale RS232 e, nel caso si voglia utilizzare la funzione di fonia, anche di una cuffia (oppure altoparlante + microfono). Fare riferimento allo schema seguente per le connessioni e ai paragrafi successivi per la descrizione delle singole interfacce.



PANNELLO INFERIORE INDUSTRIAL BASE e PLUS



La versione PLUS e la versione BASE presentano i medesimi connettori, pur con piccole differenze a livello di pinout per la presenza di un microcontrollore a bordo della versione PLUS.

CONNETTORE	PIN	EIA	CCITT	USO	IN/OUT
DB9 Seriale RS232	1	DCD	C109	Data Carrier Detect	OUT
	2	RX	C104	Receiver Data	OUT
	3	TX	C103	Transmit Data	IN
	4	DTR	C108	Data Terminal Ready	IN
	5	GND	C102	Ground	
	6	DSR	C107	Data Set Ready	OUT
	7	RTS	C105	Request To Send	IN
	8	CTS	C106	Clear To Send	OUT
	9	RI	C125	Ring Indicator	OUT

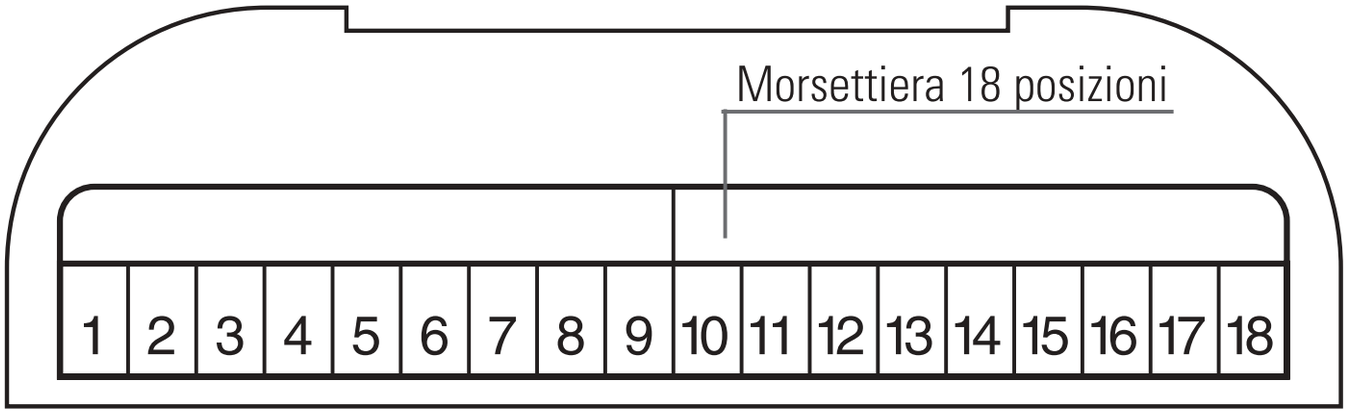
CONNETTORE	PIN	SEGNALE	USO	COLORE CAVO ALIMENTAZIONE
4 pin MICROFIT	1	Power IN	Power IN (+)	Rosso
	2	GND	Ground	Nero
	3	IGN (SCL_5V)	Ignition (SCL I^2Cbus)	Giallo
	4	PDN (SDA_5V)	Power Down (SDA I^2Cbus)	N.E.

Tra parentesi è riportato il pinout del connettore relativo alla versione Industrial PLUS.

CONNETTORE	PIN	SEGNALE	USO
6 pin MICROFIT	1	SYNC (GND)	Sincronizzazione (Ground)
	2	SPKP	Speaker Positivo (+)
	3	SPKN	Speaker Negativo (-)
	4	MICN	Microfono Negativo (-)
	5	MICP	Microfono Positivo (+)
	6	GND	Ground
Dati del costruttore	RICETTACOLO 3x2 file Costruttore: MOLEX Tipo: MICRO-FIT 3.0TM Modello: 43025-0600		TERMINALE A CRIMPARE FEMMINA Costruttore: MOLEX Serie: 43030

Tra parentesi è riportato il pinout del connettore relativo alla versione Industrial PLUS.

PANNELLO INFERIORE INDUSTRIAL I/O



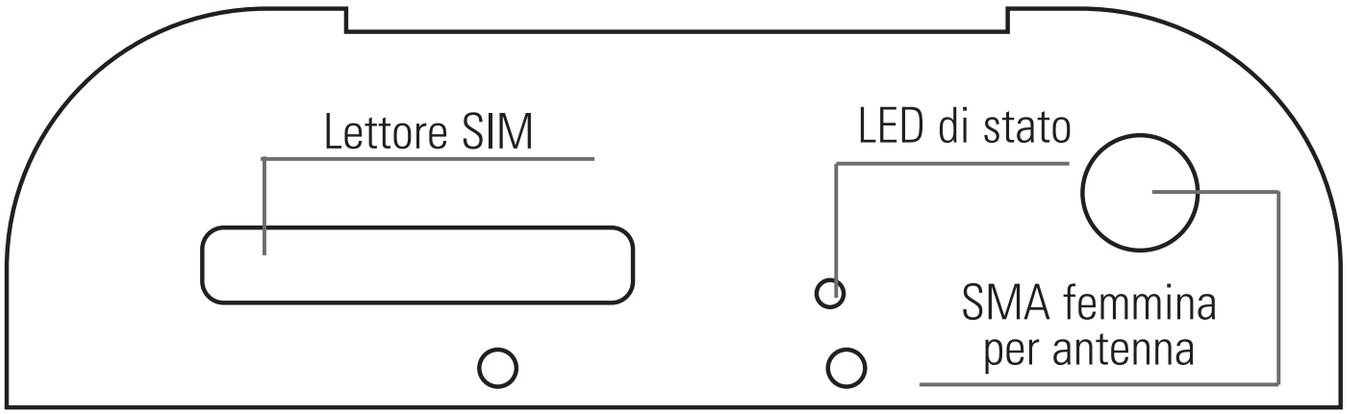
CONNETTORE	PIN	SEGNALE	USO	OPZIONI
Morsettiera 18 posizioni	1	Power IN	Power IN (+)	
	2	GND	Ground	
	3	SDA_5V	SDA I2Cbus	SPKN
	4	SCL_5V	SCL I2Cbus	SPKP
	5	GND	Ground	MICN
	6	RTS	Request To Send	MICP
	7	TX	Transmit Data	
	8	RX	Receiver Data	
	9	CTS	Clear To Send	
	10	GND	Ground	
	11	IN_1 +	Input_1 (+) *	
	12	IN_1 -	Input_1 (-) *	
	13	IN_2 +	Input_2 (+) *	
	14	IN_2 -	Input_2 (-) *	

segue >>

CONNETTORE	PIN	SEGNALE	USO	OPZIONI
Morsettiera 18 posizioni	15	OUT_1 -	Output_1 (-) ^	
	16	OUT_1 +	Output_1 (+) ^	
	17	OUT_2 -	Output_2 (-) ^	
	18	OUT_2 +	Output_2 (+) ^	

** Ingressi optoisolati (15-50Vac/dc)* *^ Uscite optoisolate (30Vcc 1A - 10Vrms 350mArms).*

PANNELLO SUPERIORE



STATO LED	DESCRIZIONE	TIPO MODEM
Spento	Modem spento o in modalità SLEEP	GSM/GPRS
600ms Acceso 600ms Spento	Nessuna SIM Card inserita, nessun PIN inserito, ricerca rete in corso, autenticazione utente in corso oppure login in rete in corso	GSM/GPRS
75ms Acceso 3s Spento	Registrato in rete, Nessuna chiamata in corso	GSM/GPRS

segue >>

STATO LED	DESCRIZIONE	TIPO MODEM
75ms Acceso 75ms Spento 75ms Acceso 3s Spento	Uno o più contesti GPRS attivati	Solo GPRS
Lampeggio	Indica trasferimento di dati GPRS: quando un trasferimento GPRS è in corso, il led si accende per 1 secondo dopo che i pacchetti dati sono stati scambiati. La durata del lampeggio è di circa 0,5 s.	Solo GPRS
Acceso	Dipende dal tipo di chiamata. **Chiamata voce**: durante una connessione attiva **Chiamata dati**: durante una connessione attiva o scambio di parametri durante l'instaurazione o la disconnessione di una chiamata	GSM/GPRS

Installazione SIM Card:

- premere il pulsante giallo per estrarre il cassetto a slitta
- inserire la SIM card
- richiudere il cassetto assicurandosi che la SIM sia alloggiata in modo corretto

***NOTA**: eseguire le operazioni sulla SIM solo a modem spento*

Antenna GSM Dual Band:

- banda: 890-960MHz / 1710-1880MHz
- impedenza caratteristica: 50 ohm
- connettore: SMA maschio

MODALITÁ DI ACCENSIONE E SPEGNIMENTO DEL MODEM (valida solo per INDUSTRIAL PLUS e I/O)

Grazie alla presenza del microcontrollore installato sulle versioni PLUS e I/O è sufficiente fornire alimentazione (pin 1 e 2 del connettore Microfit 4 poli nella versione Industrial PLUS oppure pin 1 e 2 della morsettiera 18 posizioni nella versione Industrial I/O) per provocare l'accensione del modem. La semplice rimozione dell'alimentazione provoca l'immediato spegnimento del modem.

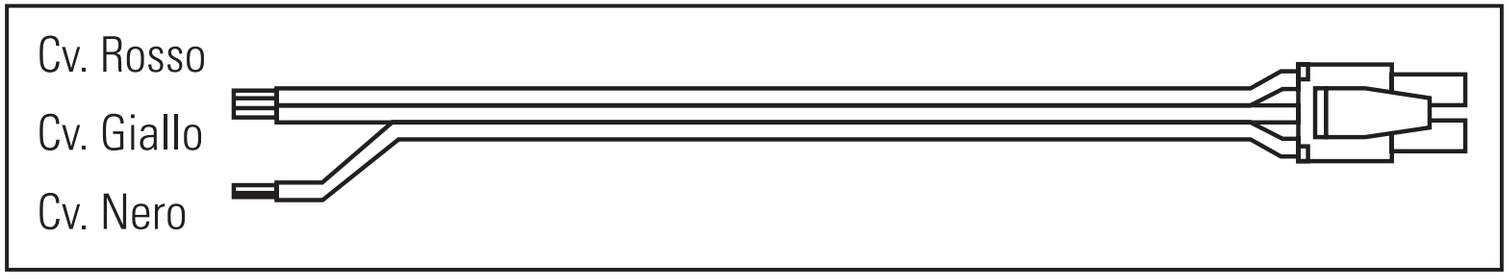
MODALITÁ DI ACCENSIONE DEL MODEM (valida solo per INDUSTRIAL BASE)

La semplice applicazione, sul connettore Microfit 4 poli, della tensione di alimentazione (Power IN al pin 1 e GND al pin 2) non è sufficiente per provocare l'accensione del modem. La modalità di accensione può avvenire secondo le due seguenti procedure:

Utilizzo del segnale di Ignition (IGN)

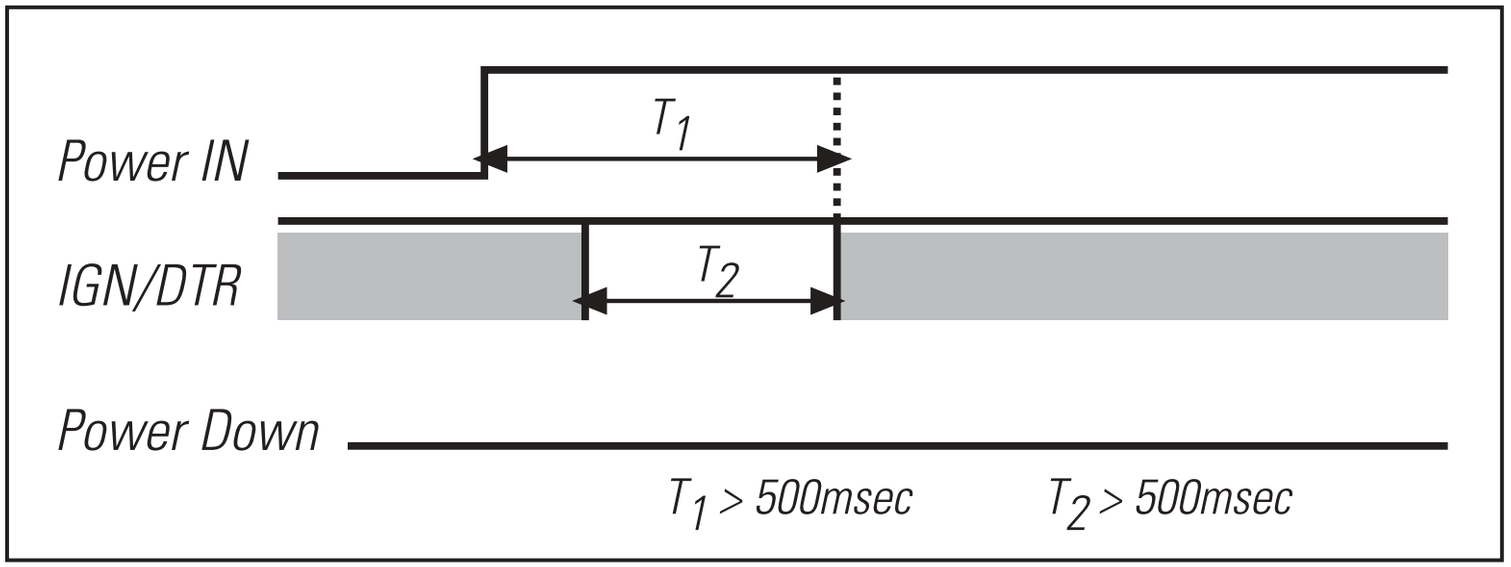
Il segnale di Ignition (IGN) deve essere mantenuto ad un livello alto, per un tempo di almeno 500msec, contemporaneamente alla presenza dell'alimentazione Power IN (vedere diagramma delle temporizzazioni riportato di seguito).

Ad esempio è sufficiente collegare, sul cavo di alimentazione fornito a corredo, il segnale di Ignition al positivo di alimentazione POWER IN (filo giallo con filo rosso). La connessione dei due fili può essere mantenuta per un tempo indefinito (vedere figura).



Utilizzo del segnale DTR (RS232)

Il modem può essere attivato secondo le medesime modalità viste per il segnale Ignition, utilizzando il segnale di controllo DTR presente sull'interfaccia seriale RS232.

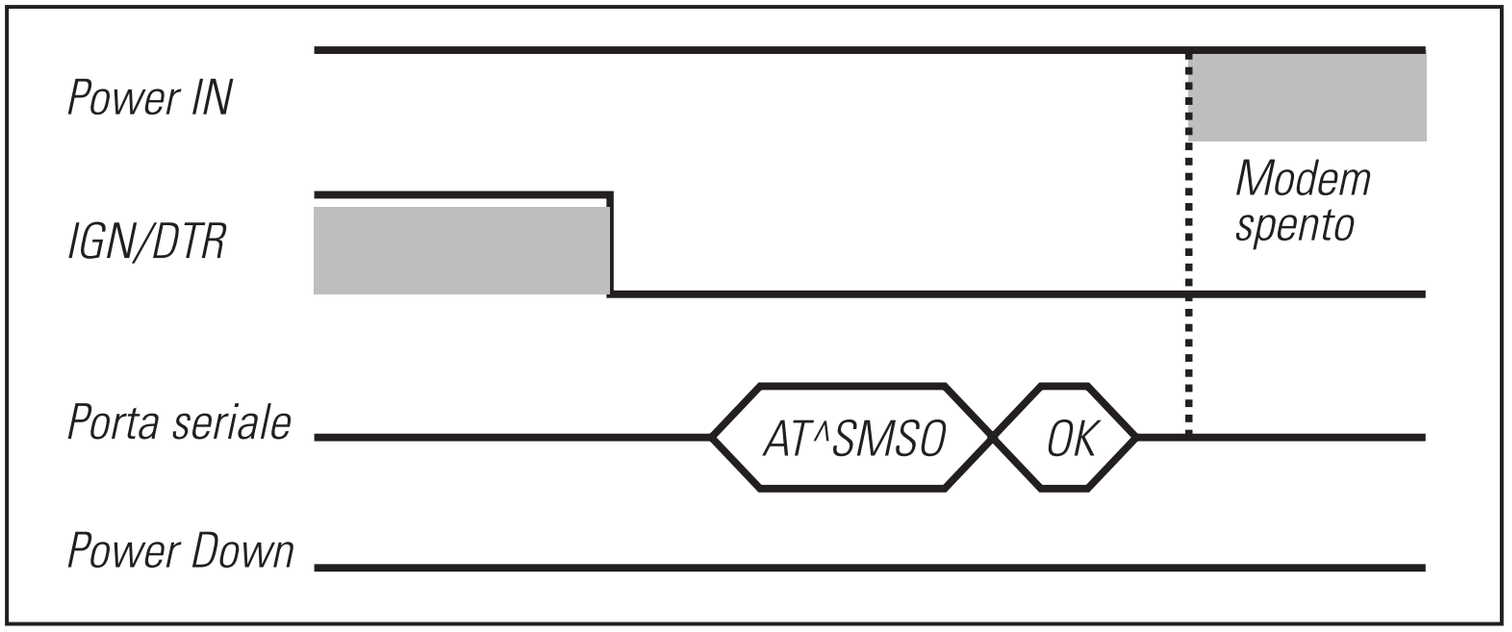


SPEGNIMENTO DEL MODEM (valido solo per INDUSTRIAL BASE)

Il modem può essere spento secondo due modalità differenti:

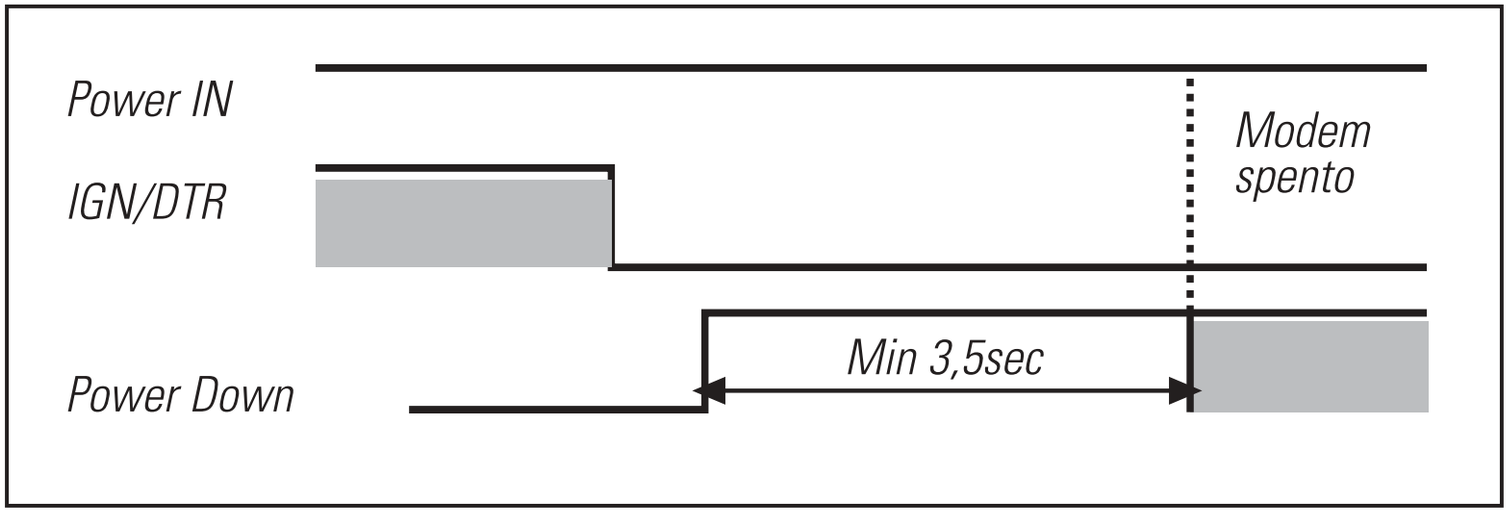
Spegnimento software

Lo spegnimento software mediante il comando AT^SMSO è la modalità consigliata per ottenere lo spegnimento controllato del modem (vedere diagramma delle temporizzazioni riportato a fianco).



Spegnimento hardware (solo in caso di emergenza)

Il segnale di Power Down (PDN) viene mantenuto a livello alto (IGN/DTR deve trovarsi a livello basso) per un intervallo minimo di 3,5sec (vedere diagramma delle temporizzazioni riportato sotto).



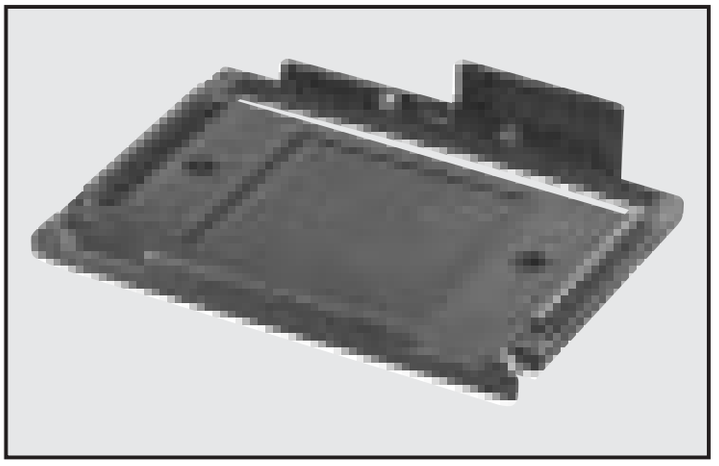
COMANDI AT ESSENZIALI

TIPO SERVIZIO	COMANDI AT	RISPOSTA MODEM	DESCRIZIONE
Inserimento Codice PIN	AT+CPIN=1234	OK	Codice PIN accettato
		+CME ERROR: 3	PIN già inserito (con +CMEE=1)
		+CME ERROR: 16	Codice PIN non corretto (con +CMEE=1)
Registrazione in Rete	AT+CREG?	+CREG:<n>,0	Non registrato; nessun tentativo di registrazione in corso
		+CREG:<n>,1	Registrato
		+CREG:<n>,2	Non registrato; tentativo di registrazione in corso
		+CREG:<n>,3	Registrazione negata
		+CREG:<n>,4	Sconosciuto
		+CREG:<n>,5	Registrato, roaming
Chiamata Entrante	ATA (*)	OK	Risposta a RING in caso di successo della connessione
		NO CARRIER	Risposta a RING in caso di fallimento della connessione
Chiamata Originata	ATD123456; usare (;) solo per chiamate voce	OK	Connessione avvenuta con successo
		+CME ERROR: 3	Connessione già effettuata
		+CME ERROR: 11	Codice PIN non inserito (con +CMEE=1)
Disconnessione	ATH	OK	Disconnessione chiamata in corso
Memorizzazione Configurazione	AT&W	OK	I parametri di configurazione vengono memorizzati
Spegnimento Modem	AT^SMSO (*)	^SMSO: MS OFF OK	Spegnimento software del dispositivo

Per il dettaglio dei comandi AT e per accedere a tutta la documentazione tecnica di prodotto fare riferimento al sito internet di Audiotel

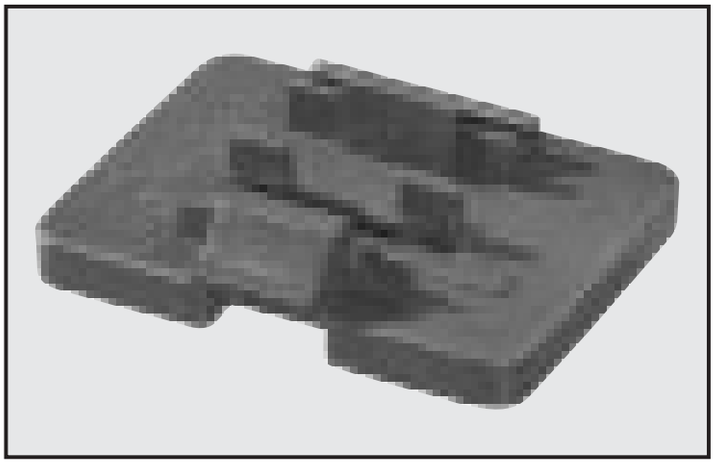
(*) *Comando disabilitato su INDUSTRIAL PLUS e I/O*

SUPPORTO DA MURO



ATTENZIONE!!! Per sganciare il modem dal supporto da muro fornito in dotazione, sollevare l'aletta del supporto stesso (dal lato del lettore SIM del modulo) e con le dita (o con un cacciavite) sfilare delicatamente verso l'alto il modem. Evitare di far compiere al modem una rotazione superiore a 15-20° circa rispetto al supporto stesso per evitare la rottura dei denti di aggancio.

ADATTATORE PER GUIDA DIN/OMEGA



ATTENZIONE !!! Per sganciare l'adattatore per guida DIN/OMEGA dalla relativa guida è necessario prima sfilare il modem secondo le modalità descritte qui a fianco, poi rimuovere il supporto da muro svitando le due viti che lo tengono fissato. Solo a questo punto è possibile sganciare l'adattatore per guida DIN/OMEGA.

LA SOCIETÀ SI RISERVA IL DIRITTO DI APPLICARE MODIFICHE SENZA PREAVVISO.

Il presente documento ha carattere di riservatezza e non può essere riprodotto o reso noto a terzi neppure parzialmente senza la nostra autorizzazione; la sua divulgazione costituisce abuso evidente.

THIS MANUAL IS VALID FOR GSM/GPRS INDUSTRIAL MODEM PRODUCTS AVAILABLE IN THE FOLLOWING VERSIONS:

- BASE - PLUS - I/O

DECLARATION OF CONFORMITY

AUDIOTEL Engineering S.p.A. - Via del Chioso, 6 - 24030 Mozzo (BG) Italy

Declares on its sole responsibility that the following product:

GSM/GPRS INDUSTRIAL MODEM

complies with the regulations in force, with reference to the R&TTE 99/5/CE directive, and, above all, with the following standards:

Health and Safety	(Art. 3.1 a):	**EN60950**
EMC	(Art. 3.1 b):	**ETS 301 489-1, ETS 301 489-7**
RF spectrum efficency	(Art. 3.2):	**3GPP TS 51.010-1, v4.2.0 (GSM 11.10-1), Draft ETSI EN 301 511, v7.0.0 (GSM 13.11).**

CE 0681

Date: February 2003
Luigi Caroli, Technical Manager

Date: February 2003
Fabio Rossmann, Quality Assurance Manager

In particular this product has been approved to comply with the following standards:

ETS 301 511	*Global System for Mobile communications (GSM); Harmonized EN for mobile stations in the GSM 900 and GSM 1800 bands covering essential requirements of article 3.2 of the R&TTE directive (1999/5/EC)*
ETS 301 489-1	*Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services;Part 1: Common technical requirements*
ETS 301 489-7	*ElectroMagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 7: Specific conditions for mobile and portable radio and ancillary equipment of digital cellular radio telecommunications systems (GSM and DCS)*
- clausole 9.1	*RF electromagnetic field*
- clausole 9.2	*Electrostatic discharge*
- clausole 9.3	*Fast transients, common mode*
- clausole 9.4	*RF common mode 0,15-80MHz*
- clausole 9.5	*Transient and surge, vehicular environment*
- clausole 9.6	*Voltage dips and interruptions*
- clausole 9.7	*Surge, common and differential mode*
EN55022	*Conducted and radiated interference*
EN61000-4-2	*Electrostatic discharge*
EN61000-4-3	*RF electromagnetic field*
EN61000-4-4	*Fast transients, BURST*
EN61000-4-5	*Surge*
EN61000-4-6	*Radio frequency common mode AM*
EN61000-4-11	*Voltage dips, interruptions and fluctuations (AC power)*
EN60950 (LVD)	

GENERAL WARNINGS

The product may be only employed for the use for which it has been conceived and manufactured. Any other form of employment shall be considered on the user's sole responsibility.
Commissioning may only occur after the product has been correctly installed. As a consequence, the user shall carefully carry out all the operations described in the manual supplied.
Audiotel Engineering S.p.A. will disclaim all responsibility for any failure, breakdown, accident, etc. due to the lack of knowledge or observance of any instruction which may have been given. The same principle applies for any non-authorised change.
Audiotel Engineering S.p.A. reserves the right to change the product for any constructive or commercial need. It is not obliged to update reference manuals promptly.
The products use the GSM/GPRS standard for cellular telephony. As a consequence they can be used only in zone inside the system coverage area.
Since the GSM/GPRS system is a radiofrequency technology (RF), it may interfere with the operation of any other electric and electronic device.
In case the antenna is directly mounted on the product, the modem has to be placed at least 2 meters far from any electric or electronic device.

The user has to respect the regulations in force; in particular it is forbidden to use the products:

- On the plane.
- In hospitals and nursing centres..

- In the proximity of fuel stations or where there is a risk of explosion.
- In the places where chemical agents in general are in use and by paying special attention to the safety rules for environments saturated (or potentially saturated) with volatile gases or fumes.
- In the places where detonation operations are carried out.
- In the proximity of electromedical devices, including personal auxiliary systems, such as: pacemakers and electroacoustic devices (hearing aids).
- In the places with a high degree of humidity.

WARRANTY

This product is guaranteed against any material and manufacture defect for a period of 24 months starting from its purchase date.
The warranty will not cover any defect due to:

- Improper and careless use
- Damage caused by atmospheric agents
- Acts of vandalism
- Wearing material

Audiotel Engineering S.p.A. reserves at its own discretion the right to repair or replace defective products. The warranty is deemed to be expired when the failure is caused by improper use or by an operating procedure which is not provided for by this manual. For more details about warranty conditions and the RMA module, refer to the material available on the Audiotel web site.

FUNCTIONAL FEATURES

- Dual Band 900/1800MHz GSM Modem
- Data, SMS, Voice and Fax services
- AT command control (standard ETSI GSM 07.05 and 07.07)
- Output power: 2W for GSM900 / 1W for GSM1800
- Power supply: 8V - 32Vcc
- Input current: Idle 20mA @ 12V, talk 150mA 900MHz @ 2W, talk 130mA 1800MHz @ 1W
- Temperature range: operating from -20°C to +55°C, storage from -40°C to +85°C, without condensing

GSM PERFORMANCES

- VOICE: voice and emergency calls (TCH/FS)
- SMS: type MT/MO/CB/PDU
- DATA: asynchronous non transparent GSM data transmission (RLP) (2400, 4800, 9600 bit/s), CSD up to 14.4Kbps, USSD, V.110
- FAX: group 3 (class1, class 2)

GPRS CONNECTIVITY (*)

- GPRS MULTISLOT 8 class (4+1)
- GPRS MOBILESTATION B class
- Max 85.6 Kbps (downlink)
- Coding schemes CS1, CS2, CS3, CS4
- PPP-Stack

(*) Available for the GPRS model only

MECHANICAL FEATURES

- Dimensions: 55x80x24mm (BASE and PLUS versions)
- Dimensions: 70x80x24mm (I/O version)
- Weight: about 120gr
- Wall fixing elements, DIN and OMEGA rail
- PCB fixing possibility

INTERFACES DESCRIPTION

INTERFACE TYPE	MODEM		
	BASE	PLUS	I/O
Female DB9 RS232 serial port connector (DCE)	✓	✓	–
4 pins MICROFIT connector	✓	✓	–
6 pins MICROFIT connector	✓	✓	–
18 positions terminal board	–	–	✓
Female SMA external antenna connector	✓	✓	✓
SIM plug-in card reader	✓	✓	✓
Status modem LED	✓	✓	✓

SALE PACKAGE CONTENT

- GSM/GPRS modem
- Power supply cable (not supplied for I/O version)
- Wall fixing elements + DIN and OMEGA rail adapter
- The present manual

SPECIFIC FEATURES FOR INDUSTRIAL BASE

- DB9 data interface
  V.24/RS232 (full DCE signals)
- 4 pins Microfit connector
  Power supply, IGN and PDN
- 6 pins Microfit connector
  Voice and SYNC
- AT Commands
  V.25/ter + Siemens proprietary

SPECIFIC FEATURES FOR INDUSTRIAL PLUS

- Embedded microcontroller
  8-bits RISC uC @8 MIPS 2Mb data_flash and 64Kb SRAM
- DB9 data interface
  V.24/RS232 (full DCE signals)
- 4 pins Microfit connector
  Power supply and I2Cbus
- 6 pins Microfit connector
  Voice
- TCP/IP Stack
  WebServer, HTTP, FTP, SMTP and DHCP, TCP, IP, ARP, UDP, ICMP and PPP
- AT Commands
  V.25/ter + Siemens proprietary + Audiotel proprietary
  (TCP/IP and maintenance oriented)
- Power API collection

Kernel Multitasking (RTOS), serial interfaces (V.24 & I2Cbus),
complete management of GSM/GPRS functions, utilities (RF measure,
functional profile management), IP Suite (application & sockets layers)

SPECIFIC FEATURES FOR INDUSTRIAL I/O

- Embedded microcontroller
  8-bits RISC uC @8 MIPS 2Mb data_flash and 64Kb SRAM
- 18 positions terminal board
  Power supply, voice, 2 optoisolated inputs (15-50Vac/dc), 2 optoisolated outputs (30Vcc 1A – 10Vrms 350mArms), I2Cbus, V.24/RS232 (RTS, CTS, TX, RX)
- TCP/IP Stack
  WebServer, HTTP, FTP, SMTP and DHCP, TCP, IP, ARP, UDP, ICMP and PPP
- AT Commands
  V.25/ter + Siemens proprietary + Audiotel proprietary
  (TCP/IP and maintenance oriented)
- Power API collection
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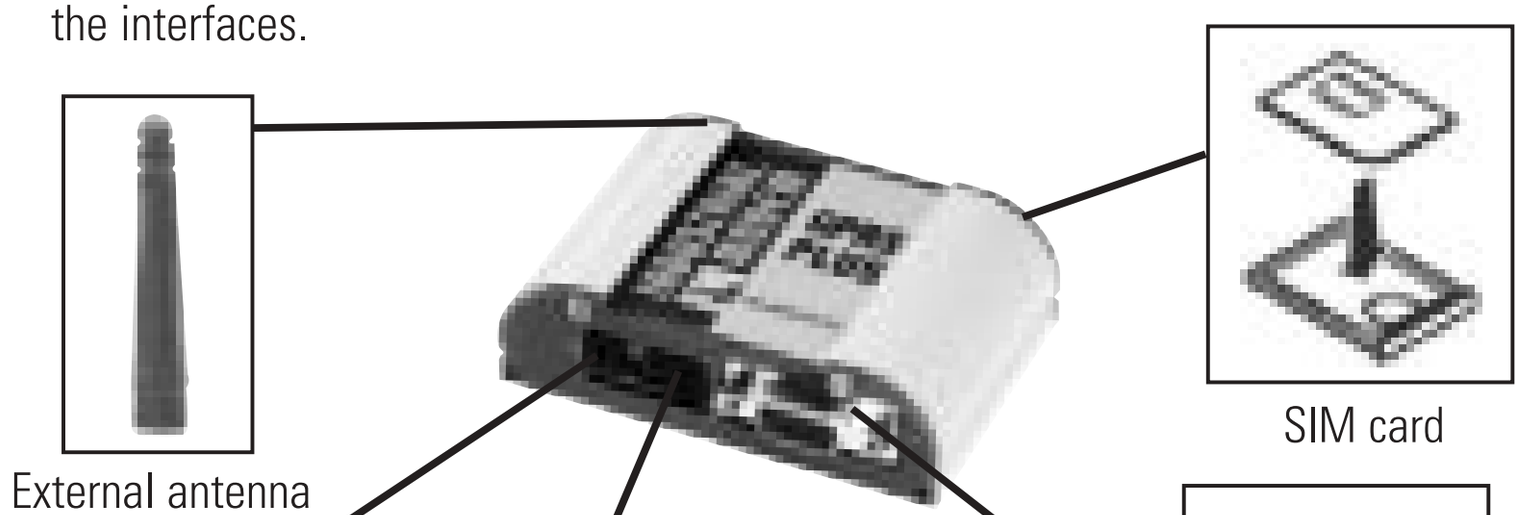
  functional profile management), IP Suite (application & sockets layers)

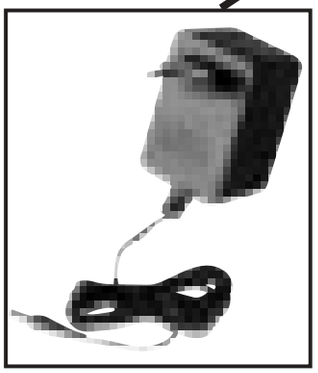
INSTALLATION

Before installing the modem it is necessary to prepare a SIM card, a DC power supply (8-32V), an external antenna, a personal computer (or other DTE equipment) equipped with RS232 serial port and, in case You want to use the voice function, a headset (or loudspeaker + microphone). Please, see the following scheme for the connections and refer to the following paragraphs for a detailed description of all the interfaces.

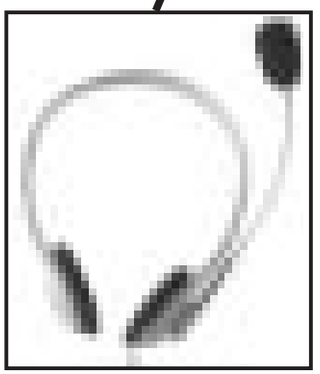


External antenna

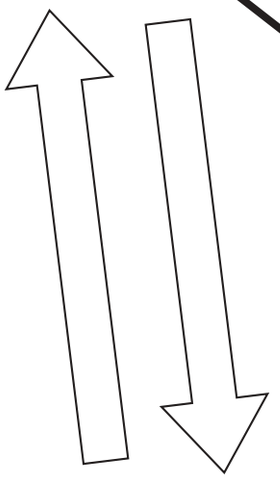
SIM card



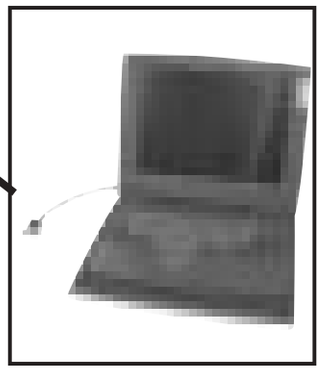
AC/DC
Power Supply



Headset
(or loudspeaker+microphone)

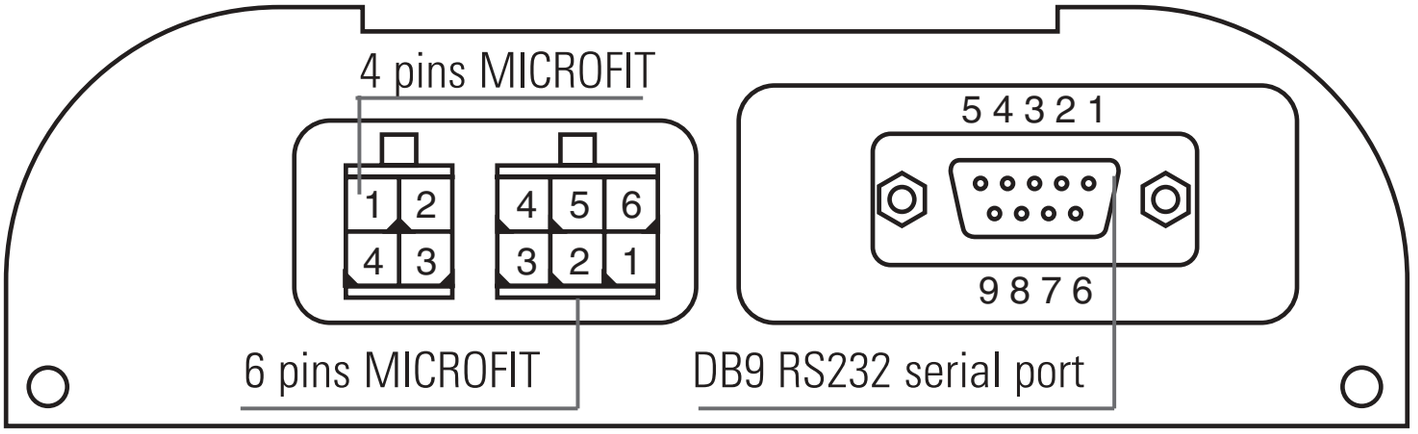


I²Cbus signals and/or Input/Output lines
(only for INDUSTRIAL PLUS and I/O versions)



PC (or other DTE)
equipped with serial port

LOWER PANEL FOR INDUSTRIAL BASE AND PLUS



Industrial PLUS and Industrial BASE modems are equipped with the same connectors, nevertheless a few pinout difference is due to the presence of the microcontroller installed on the PLUS version.

CONNECTOR	PIN	EIA	CCITT	USAGE	IN/OUT
DB9 RS232 serial port	1	DCD	C109	Data Carrier Detect	OUT
	2	RX	C104	Receiver Data	OUT
	3	TX	C103	Transmit Data	IN
	4	DTR	C108	Data Terminal Ready	IN
	5	GND	C102	Ground	
	6	DSR	C107	Data Set Ready	OUT
	7	RTS	C105	Request To Send	IN
	8	CTS	C106	Clear To Send	OUT
	9	RI	C125	Ring Indicator	OUT

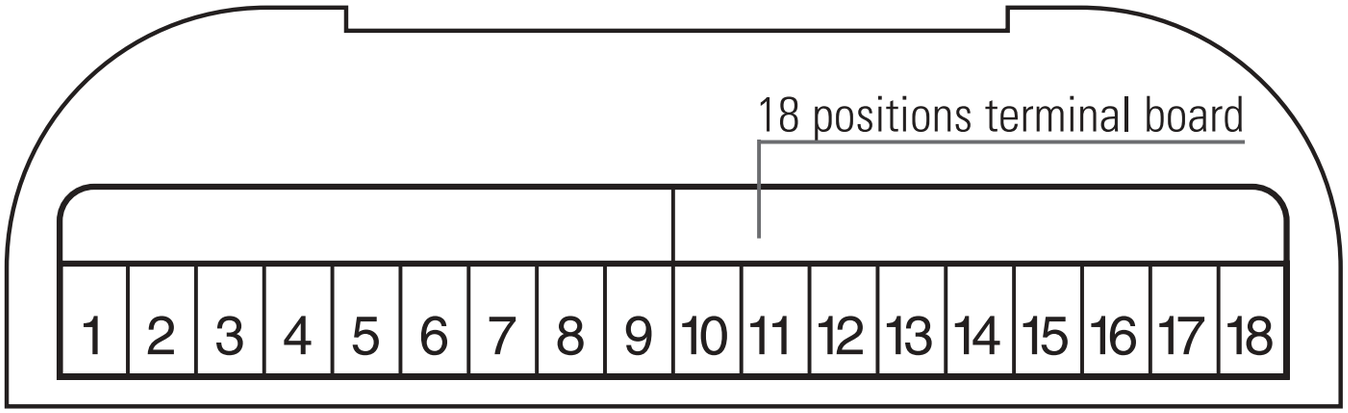
CONNECTOR	PIN	SIGNAL	USAGE	POWER SUPPLY CABLE COLOURS
4 pins MICROFIT	1	Power IN	Power IN (+)	Red
	2	GND	Ground	Black
	3	IGN (SCL_5V)	Ignition (SCL I²Cbus)	Yellow
	4	PDN (SDA_5V)	Power Down (SDA I²Cbus)	N.E.

The Industrial PLUS connector pinout is shown between brackets.

CONNECTOR	PIN	SIGNAL	USAGE
6 pin MICROFIT	1	SYNC (GND)	Synchronization (Ground)
	2	SPKP	Loudspeaker Positive (+)
	3	SPKN	Loudspeaker Negative (-)
	4	MICN	Microphone Negative (-)
	5	MICP	Microphone Positive (+)
	6	GND	Ground
Constructor information	RECEPTACLE 3x2 lines Constructor: MOLEX Type: MICRO-FIT 3.0TM Model: 43025-0600		CRIMP TERMINAL FEMALE Constructor: MOLEX Series: 43030

The Industrial PLUS connector pinout is shown between brackets.

LOWER PANEL FOR INDUSTRIAL I/O

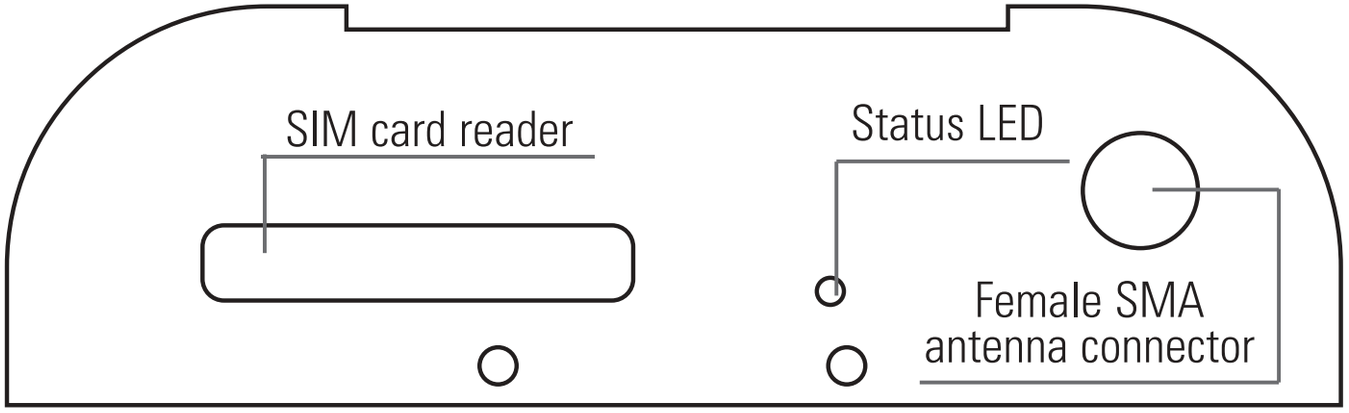


CONNECTOR	PIN	SIGNAL	USAGE	OPTION
18 positions terminal board	1	Power IN	Power IN (+)	
	2	GND	Ground	
	3	SDA_5V	SDA I2Cbus	SPKN
	4	SCL_5V	SCL I2Cbus	SPKP
	5	GND	Ground	MICN
	6	RTS	Request To Send	MICP
	7	TX	Transmit Data	
	8	RX	Receiver Data	
	9	CTS	Clear To Send	
	10	GND	Ground	
	11	IN_1 +	Input_1 (+) *	
	12	IN_1 -	Input_1 (-) *	
	13	IN_2 +	Input_2 (+) *	
	14	IN_2 -	Input_2 (-) *	

CONNECTOR	PIN	SIGNAL	USAGE	OPTION
18 positions terminal board	15	OUT_1 -	Output_1 (-) ^	
	16	OUT_1 +	Output_1 (+) ^	
	17	OUT_2 -	Output_2 (-) ^	
	18	OUT_2 +	Output_2 (+) ^	

** Optoisolated inputs (15-50Vac/dc)* *^ Optoisolated outputs (30Vcc 1A - 10Vrms 350mArms).*

UPPER PANEL



LED STATUS	DESCRIPTION	MODEM TYPE
Off	The modem is off or running in SLEEP, Alarm or Charge-only mode	GSM/GPRS
600ms On 600ms Off	No SIM card inserted or no PIN entered, or network search in progress, or ongoing user authentication, or network login in progress	GSM/GPRS
75ms On 3s Off	Logged to network (monitoring control channels and user interactions). No call in progress	GSM/GPRS

next >>

LED STATUS	DESCRIPTION	MODEM TYPE
75ms On 75ms Off 75ms On 3s Off	One or more GPRS contexts activated	GPRS only
Flashing	Indicates GPRS data transfer: when a GPRS transfer is in progress, the LED goes on within 1 second after data packets were exchanged. Flash duration is approximately 0.5 sec.	GPRS only
On	Depending on type of call: **Voice call**: connected to remote party. **Data call**: connected to remote party or exchange of parameters while setting up or disconnecting a call	GSM/GPRS

How to install the SIM Card:

- press the yellow button to extract the SIM holder
- house the SIM card in the support
- insert the support into the GSM modem, ensuring that the SIM card is properly hosted

WARNING*: power down the modem before replacing the SIM card.*

Dual Band GSM antenna:

- band: 890-960MHz / 1710-1880MHz
- impedance: 50 ohm
- connector: SMA male

SWITCHING ON/OFF THE MODEM (valid only for INDUSTRIAL PLUS and I/O)

The microcontroller installed on the Industrial PLUS and I/O allows You to switch on the modems simply furnishing them the power supply (refer to pin 1 and 2 of the 4 pins Microfit connector if using the Industrial PLUS; refer to pin 1 and 2 of the 18 positions terminal board if using the Industrial I/O).
Removing the power supply is the way to switch off the modem.

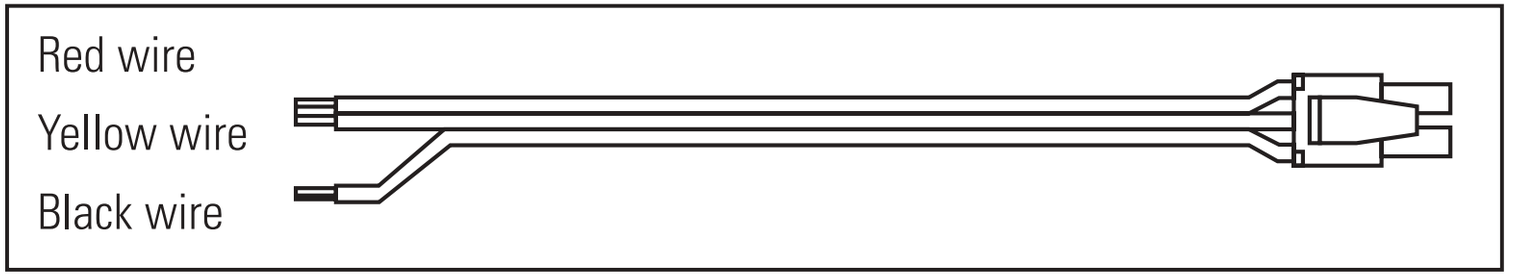
SWITCHING ON THE MODEM (valid only for INDUSTRIAL BASE)

Simply applying supply voltage, on the 4 pins Microfit connector, (Power IN to pin 1 and GND to pin 2) alone is not enough to switch on the modem. It can be switched on in two different ways:

Using the Ignition signal (IGN)

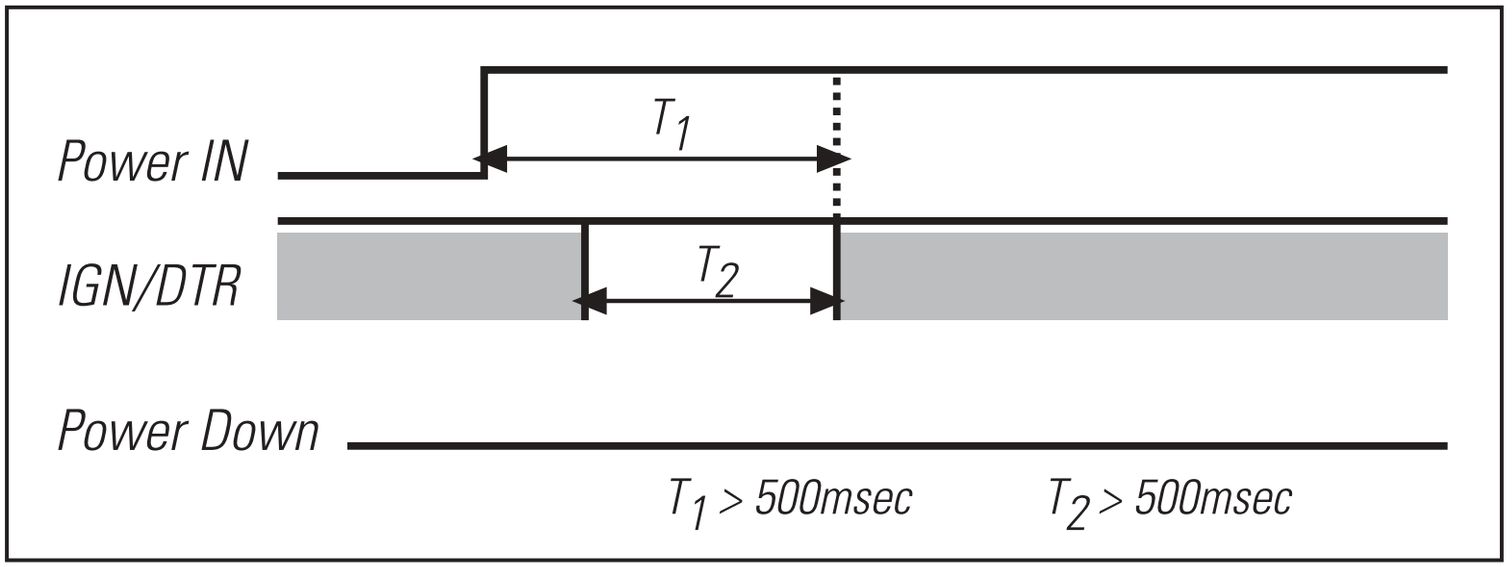
The Ignition signal (IGN) have to be kept in a high level state, for at least 500msec, at the same time of the power supply Power IN (see the timing diagram below).

For example it is sufficient to connect, in the power supply cable contained in the sale package, the Ignition signal to the Power IN line (yellow wire with red wire) in order to switch on the modem. This connection could be maintained for a indefinite period of time (see picture below).



Using the RS232 control line DTR

The modem can be switched on in the same way as via the Ignition signal, by activating the RS232 control line DTR.

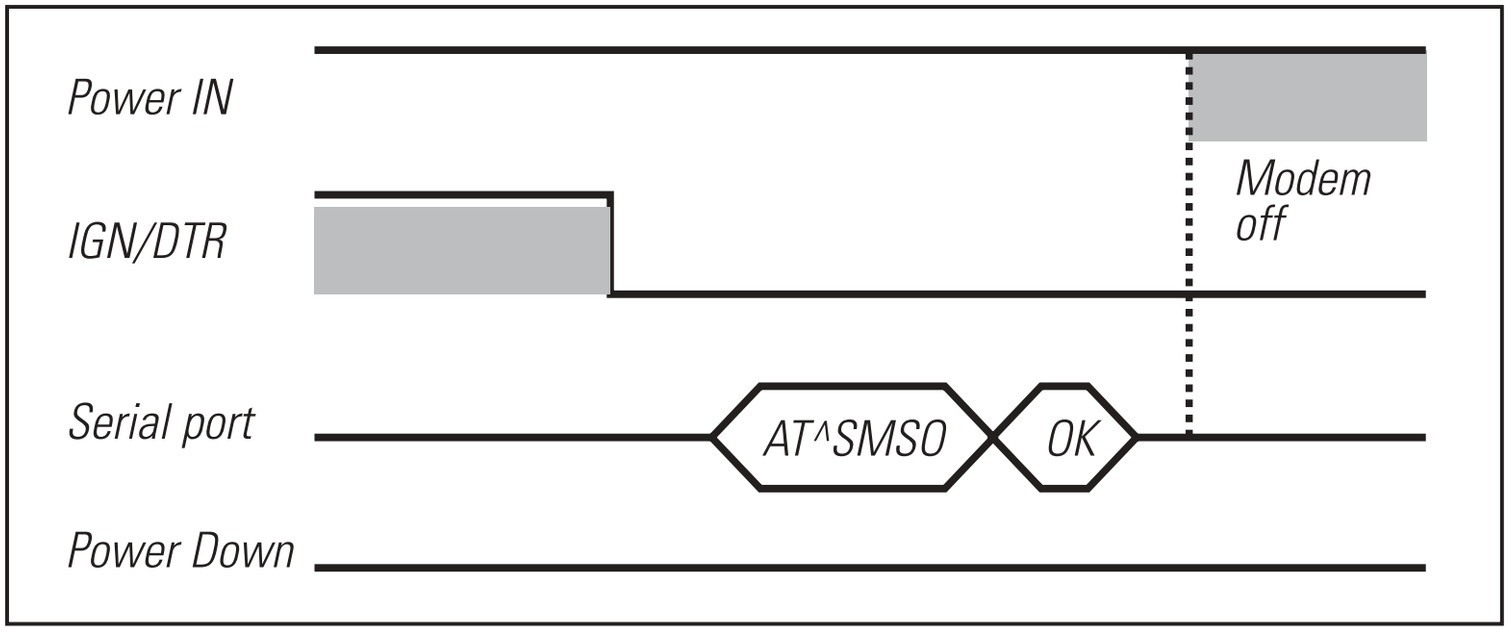


SWITCHING OFF THE MODEM (valid only for INDUSTRIAL BASE)

The modem can be switched off in two different ways:

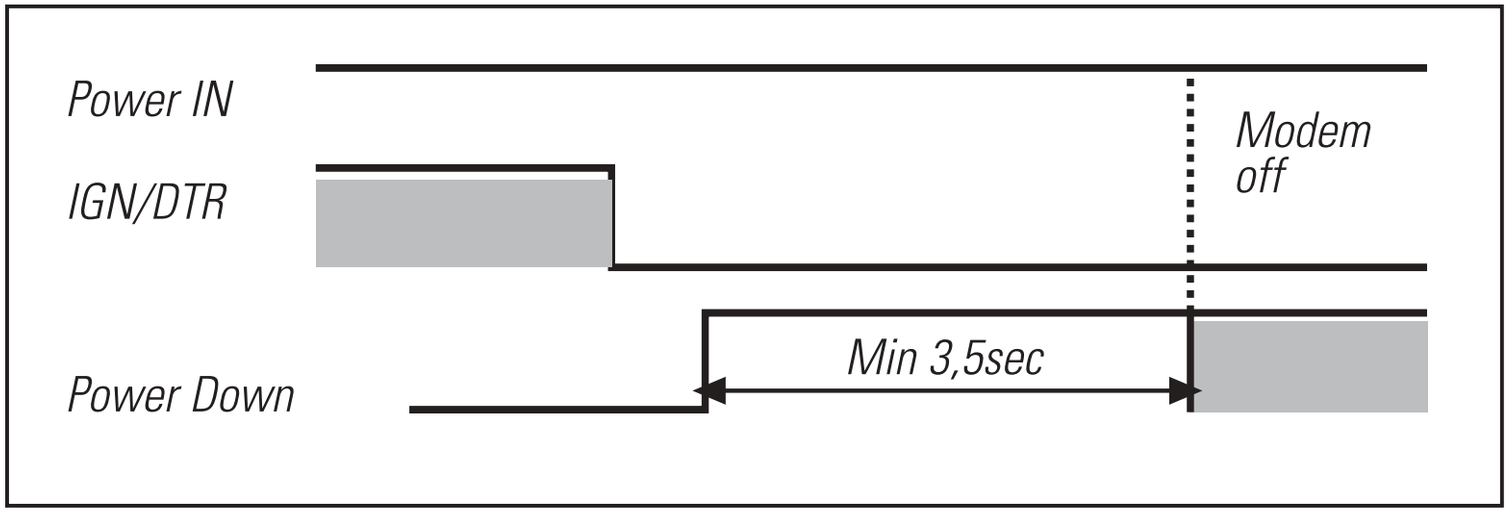
Software switching off

The software shutdown via the AT^SMSO command is always advisable for a controlled shutdown of the modem (see the timing diagram below).



Hardware switching off (in case of emergency only)

The Power Down signal (PDN) have to be kept in a high level (IGN/DTR signal have to be kept in a low level) for at least 3,5sec (see the timing diagram below).



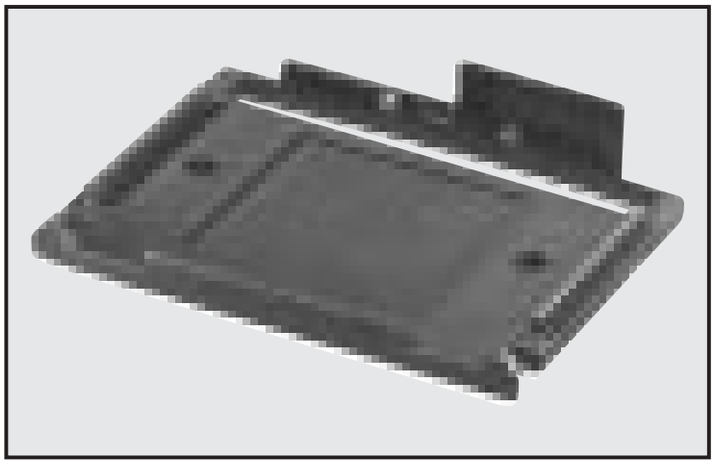
MAIN AT COMMANDS

ACTION	AT COMMAND	MODEM	DESCRIPTION
Enter PIN code	AT+CPIN=1234	OK	PIN code accepted
		+CME ERROR: 3	PIN code already entered (with +CMEE=1)
		+CME ERROR: 16	Incorrect PIN code (with +CMEE=1)
Network registration	AT+CREG?	+CREG:<n>,0	Not registered; modem is not searching for new operator
		+CREG:<n>,1	Registered, home network
		+CREG:<n>,2	Not registered; modem is searching for a new operator
		+CREG:<n>,3	Registration denied
		+CREG:<n>,4	Unknown
		+CREG:<n>,5	Registered, roaming
Incoming call	ATA (*)	OK	Answer in case of successful connection
		NO CARRIER	Answer in case of fail connection
Outgoing call	ATD123456; remember (;) at the end of a voice call	OK	Connection established
		+CME ERROR: 3	Connection already established
		+CME ERROR: 11	PIN code not entered (with +CMEE=1)
Hang up	ATH	OK	Disconnection of any call in progress
Store configuration	AT&W	OK	The configuration parameters are stored
Switching off mobile station	AT^SMSO (*)	^SMSO: MS OFF OK	Software switching off

For more AT command details and product technical documentation, please refer to the Audiotel web site

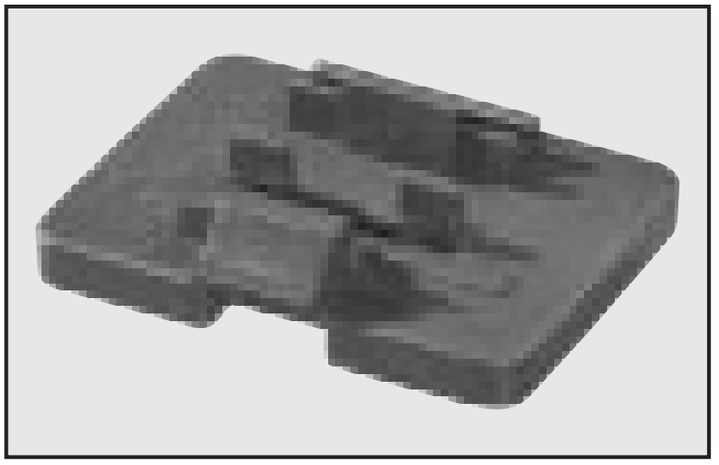
(*) *Command disabled for INDUSTRIAL PLUS e I/O.*

THE WALL FIXING ELEMENTS



WARNING!!! Lift up the wall fixing elements' fin (on the modem side where is located the SIM reader) by using your fingers (or a screwdriver). Disconnect the modem gently and take it off. Do not turn the modem with an angle greater than 15-20° with respect to the wall fixing elements, in order to avoid breaking the fixing teeth.

DIN AND OMEGA RAIL ADAPTER



WARNING !!! In order to unlock the DIN and OMEGA rail adapter from the relative rail it is necessary to take the modem off according to the previous instructions, then remove the wall fixing elements by unscrewing the couple of screws that block it. At this point it is possible to unlock the DIN and OMEGA rail adapter.

THE CONTENT OF THIS MANUAL IS SUBJECTED TO CHANGE WITHOUT FURTHER NOTICE.

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ESTE MANUAL ES VÁLIDO PARA LOS PRODUCTOS INDUSTRIAL MODEM GSM/GPRS EN SUS VERSIONES:

- BASE - PLUS - I/O

DECLARACIÓN DE CONFORMIDAD

AUDIOTEL Engineering S.p.A. - Via del Chioso, 6 - 24030 Mozzo (BG) Italia

Declara bajo la propia responsabilidad que el producto:

INDUSTRIAL MODEM GSM/GPRS

es conforme con las normativas vigentes con respecto a la directriz R&TTE 99/5/CE y en especial con las siguientes normas:

Health and Safety	(Art. 3.1 a):	**EN60950**
EMC	(Art. 3.1 b):	**ETS 301 489-1, ETS 301 489-7**
RF spectrum efficency	(Art. 3.2):	**3GPP TS 51.010-1, v4.2.0 (GSM 11.10-1), Draft ETSI EN 301 511, v7.0.0 (GSM 13.11).**

CE 0681

Fecha: febrero 2003
Luigi Caroli, Director Técnico

Fecha: febrero 2003
Fabio Rossmann,
Responsable de la Garantía de Calidad

En especial el producto ha sido aprobado conforme con las siguientes normas:

ETS 301 511	*Global System for Mobile communications (GSM); Harmonized EN for mobile stations in the GSM 900 and GSM 1800 bands covering essential requirements of article 3.2 of the R&TTE directive (1999/5/EC)*
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- cláusula 9.5	*Transient and surge, vehicular environment*
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EN61000-4-11	*Voltage dips, interruptions and fluctuations (AC power)*
EN60950 (LVD)	

ADVERTENCIAS GENERALES

El producto debe ser utilizado exclusivamente para el uso para el cual ha sido concebido y fabricado. Cualquier otra forma de empleo se debe considerar bajo total responsabilidad del usuario. La puesta en funcionamiento, debe ser efectuada solamente después de una instalación correcta, por lo tanto el usuario debe proveer para efectuar con cuidado todas las operaciones descriptas en el manual que se entrega juntamente con el producto. Audiotel Engineering S.p.A. no se considerará responsable por inconvenientes, roturas, accidentes, etc., debidos al desconocimiento o a la no aplicación de las prescripciones indicadas. Lo mismo se debe entender para eventuales modificaciones no autorizadas.
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Los equipos utilizan el estándar GSM/GPRS para la telefonía celular, por lo tanto son utilizables en zonas que se encuentran en el área de cobertura del mismo sistema con una SIM de un gestor compatible. Dado que el sistema GSM/GPRS es una tecnología a radiofrecuencia (RF), pueden existir interferencias en presencia de otros equipos eléctricos o problemas en el funcionamiento de dispositivos electrónicos. En el caso que se utilice una antena montada directamente sobre el producto, el mismo se debe instalar en un lugar abierto y a por lo menos 2 metros de distancia de cualquier equipo eléctrico o electrónico. El usuario está obligado a respetar las normativas vigentes, en especial se prohibe el uso de los equipos:

- en aviones.
- en hospitales y centros de cuidados médicos.

- En las cercanías de distribuidores de carburante o donde haya peligro de explosiones.
- En los sitios donde se trabaja con agentes químicos en general, y con especial atención a las normas de seguridad para ambientes saturados (o potencialmente saturados) de gas o de exhalaciones volátiles.
- En lugares donde se encuentren en curso operaciones de detonación.
- En las cercanías de aparatos electromedicinales, inclusive de sistemas de auxilio personal como por ejemplo: pacemakers y aparatos electroacústicos (hearing aids).
- En ambientes con alto grado de humedad.

GARANTÍA

Este producto está garantizado contra eventuales defectos de los materiales y de fabricación por un período de 24 meses a partir de la fecha de compra. La garantía no cubre defectos debidos a:

- Uso inadecuado y negligencia.
- Daños provocados por agentes atmosféricos.
- Actos vandálicos.
- Materiales sujetos a desgaste

Audiotel Engineering S.p.A. se reserva, a su exclusiva discreción el derecho de reparar o reemplazar los productos considerados defectuosos. La garantía se considera vencida cuando la avería ha sido inducida por un uso no adecuado o por un procedimiento operativo no contemplado en el manual de uso. Para ver los detalles de las condiciones de la garantía y del módulo RMA remitirse al material disponible en el sitio internet de Audiotel.

CARACTERÍSTICAS FUNCIONALES

- Módem Dual Band 900/1800MHz GSM
- Servicios de Datos, SMS, Voz y Fax
- Control con mandos AT (estándar ETSI GSM 07.05 y 07.07)
- Potencia de salida: 2W para GSM900 / 1W para GSM1800
- Alimentación: 8V - 32Vcc
- Absorción: 20mA Idle @ 12V, 150mA 900MHz @ 2W, 130mA 1800MHz @ 1W
- Rango de temperatura: operativo desde -20°C hasta +55°C, almacenado desde -40°C hasta +85°C, sin condensación

PRESTACIONES GSM

- VOZ: fónica y llamadas de emergencia (TCH/FS)
- SMS: modo MT/MO/CB/PDU
- DATOS: modo de transmisión de datos GSM asincrónico, modo no transparente (RLP) (2400, 4800, 9600 bit/s), CSD hasta 14.4Kbps, USSD, V.110
- FAX: grupo 3 (clase 1, clase 2)

CONECTIVIDAD GPRS (*)

- GPRS MULTISLOT clase 8 (4+1)
- GPRS MOBILESTATION clase B
- Máx 85.6 Kbps (downlink)
- Esquemas de codificación CS1, CS2, CS3, CS4
- Stack PPP

(*) Disponible sólo para el modelo GPRS

CARACTERÍSTICAS MECÁNICAS

- Dimensiones: 55x80x24mm (vers. BASE y PLUS)
- Dimensiones: 70x80x24mm (vers. I/O)
- Peso: 120gr aprox.
- Elementos para la fijación a la pared, guía DIN y guía OMEGA
- Posibilidad de fijación directa sobre el PCB

DESCRIPCIÓN DE LAS INTERFACES

TIPO DE INTERFAZ	MÓDEM		
	BASE	PLUS	I/O
Conector DB9 hembra para puerto serial RS232 (DCE)	✓	✓	–
Conector MICROFIT de 4 polos	✓	✓	–
Conector MICROFIT de 6 polos	✓	✓	–
Bornera de 18 posiciones	–	–	✓
Conector de antena externa SMA hembra	✓	✓	✓
Lector de tarjeta SIM plug-in	✓	✓	✓
Led con función de indicador del estado del módem	✓	✓	✓

DOTACIONES

- Módem GSM/GPRS
- Cable de alimentación (no suministrado para la versión I/O)
- Soporte de pared + adaptador de guías DIN y OMEGA
- El presente manual.

CARACTERÍSTICAS ESPECÍFICAS DEL INDUSTRIAL BASE

- Interfaz de datos DB9
  V.24/RS232 (todas las señales DCE)
- Conector Microfit de 4 polos.
  Alimentación, IGN y PDN
- Conector Microfit de 6 polos.
  Fónico y SYNC
- Mandos AT
  V.25/ter + Siemens proprietary

CARACTERÍSTICAS ESPECÍFICAS DEL INDUSTRIAL PLUS

- Microcontrolador tipo embedded
  8-bits RISC uC @8 MIPS 2Mb data_flash y 64Kb SRAM
- Interfaz de datos DB9
  V.24/RS232 (todas las señales DCE)
- Conector Microfit de 4 polos.
  Alimentación y I2Cbus
- Conector Microfit de 6 polos.
  Fónico
- Stack TCP/IP
  WebServer, HTTP, FTP, SMTP y DHCP, TCP, IP, ARP, UDP, ICMP y PPP
- Mandos AT
  V.25/ter + Siemens proprietary + Audiotel proprietary (mandos orientados a TCP/IP y mantenimiento)
- Colección API.

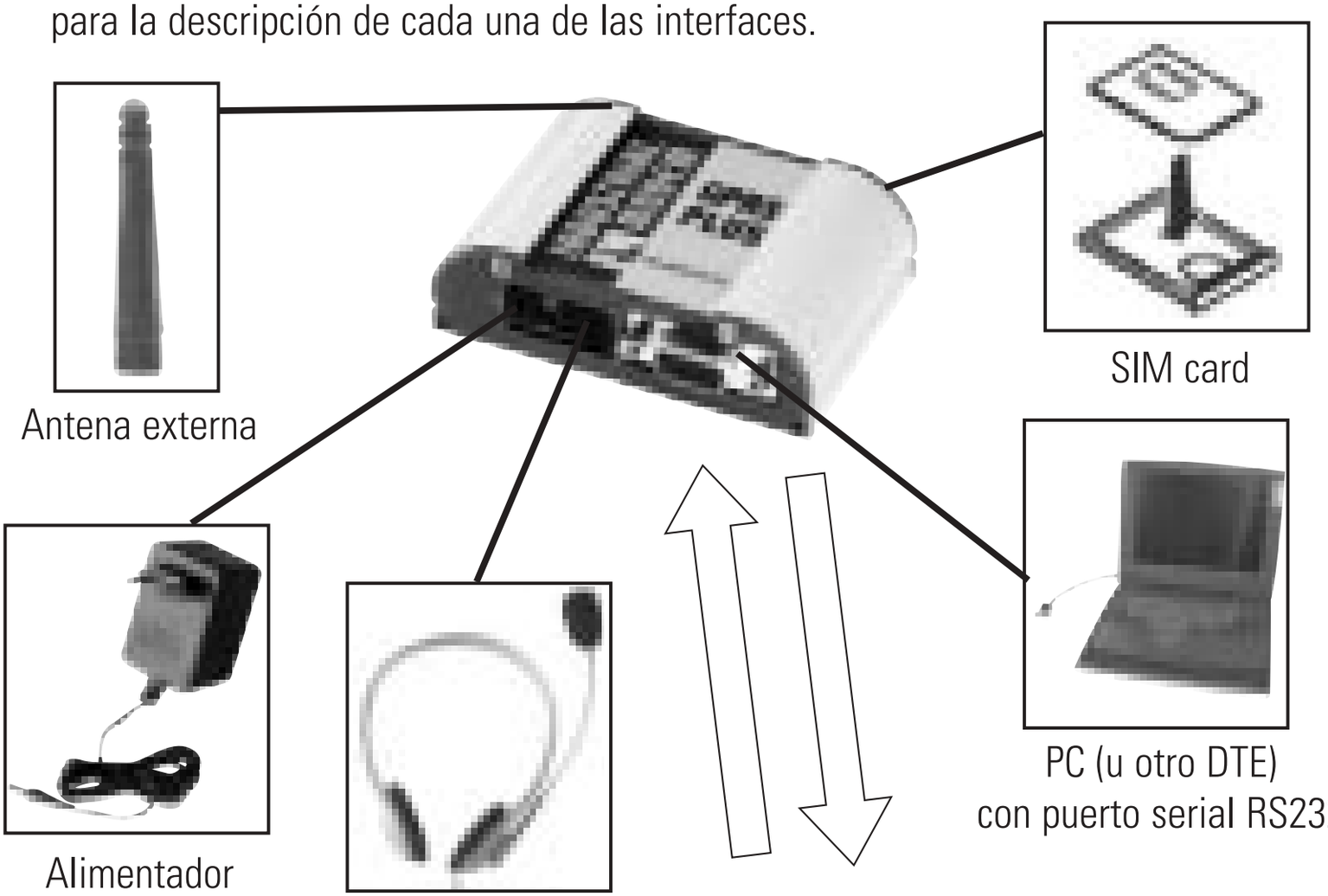
Kernel Multitasking (RTOS), interfaces seriales (V.24 y I2Cbus), con gestión completa de funciones GSM/GPRS, utilities (mediciones RF, gestión de perfiles funcionales), IP Suite (application & sockets layers)

CARACTERÍSTICAS ESPECÍFICAS DEL INDUSTRIAL I/O

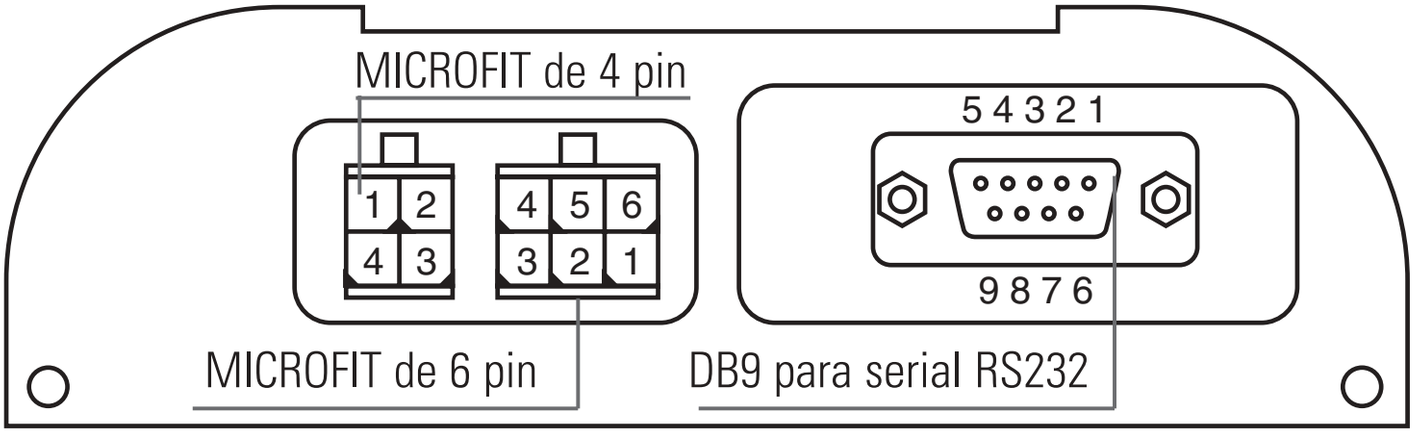
- Microcontrolador de tipo embedded
  8-bits RISC uC @8 MIPS 2Mb data_flash y 64Kb SRAM
- Bornera de 18 posiciones.
  Alimentación, fónico, 2 entradas optoaisladas (15-50Vac/dc), 2 salidas optoaisladas (30Vcc 1A – 10Vrms 350mArms), I2Cbus, V.24/RS232 (RTS, CTS, TX, RX)
- Stack TCP/IP
  WebServer, HTTP, FTP, SMTP y DHCP, TCP, IP, ARP, UDP, ICMP y PPP
- Mandos AT
  V.25/ter + Siemens proprietary + Audiotel proprietary (mandos orientados a TCP/IP y mantenimiento)
- Colección API
  Kernel Multitasking (RTOS), interfaces seriales (V.24 y I2Cbus), con gestión completa de funciones GSM/GPRS, utilities (mediciones RF, gestión de perfiles funcionales), IP Suite (application & sockets layers).

INSTALACIÓN

Para instalar y hacer operativo el módem es necesario tener una tarjeta SIM card, una fuente de alimentación de corriente continua (8-32V), una antena externa, un personal computer (u otro DTE) con un puerto serial RS232 y, en caso se desee utilizar la función fónica, también una cofia (o un altoparlante + micrófono). Tomar como referencia el esquema siguiente para las conexiones y los párrafos siguientes para la descripción de cada una de las interfaces.



PANEL INFERIOR INDUSTRIAL BASE y PLUS



La versión PLUS y la versión BASE presentan los mismos conectores, aunque con pequeñas diferencias a nivel de pinout debido a la presencia de un microcontrolador a bordo de la versión PLUS.

CONECTOR	PIN	EIA	CCITT	USO	IN/OUT
DB9 Serial RS232	1	DCD	C109	Data Carrier Detect	OUT
	2	RX	C104	Receptor Data	OUT
	3	TX	C103	Transmisor Data	IN
	4	DTR	C108	Data Terminal Ready	IN
	5	GND	C102	Ground	
	6	DSR	C107	Data Set Ready	OUT
	7	RTS	C105	Request To Send	IN
	8	CTS	C106	Clear To Send	OUT
	9	RI	C125	Ring Indicator	OUT

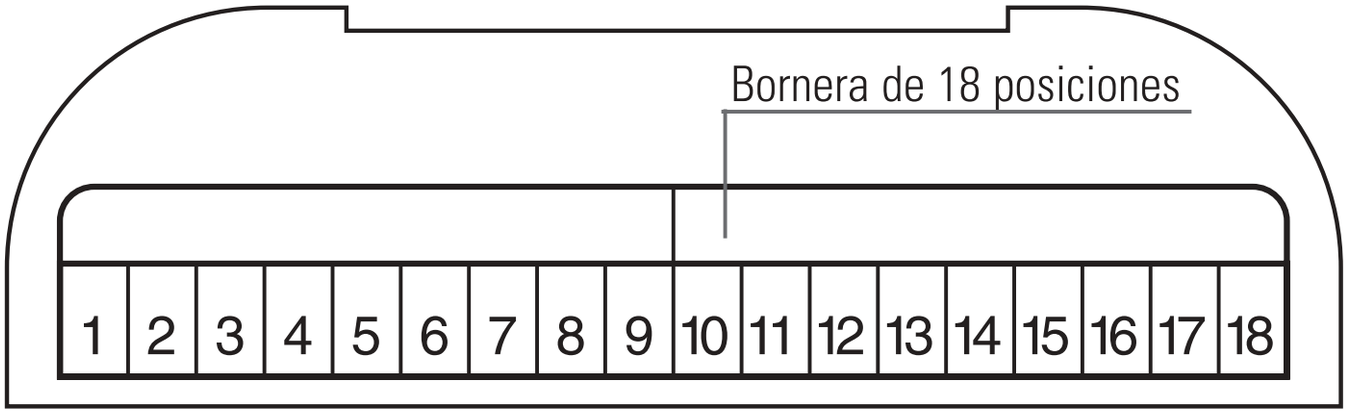
CONECTOR	PIN	SEÑAL	USO	COLOR DEL CABLE DE ALIMENTACIÓN
4 pin MICROFIT	1	Power IN	Power IN (+)	Rojo
	2	GND	Tierra	Negro
	3	IGN (SCL_5V)	Encendido (SCL I2Cbus)	Amarillo
	4	PDN (SDA_5V)	Power Down (SDA I2Cbus)	N.E.

Entre paréntesis se indica el pinout del conector relativo a la versión Industrial PLUS.

CONECTOR	PIN	SEÑAL	USO
6 pin MICROFIT	1	SYNC (GND)	Sincronización (Tierra)
	2	SPKP	Speaker Positivo (+)
	3	SPKN	Speaker Negativo (-)
	4	MICN	Micrófono Negativo (-)
	5	MICP	Micrófono Positivo (+)
	6	GND	Tierra
Datos del fabricante	RECEPTÁCULO 3x2 file Fabricante: MOLEX Tipo: MICRO-FIT 3.0TM Modelo: 43025-0600		TERMINAL A CRIMPARE HEMBRA Fabricante: MOLEX Serie: 43030

Entre paréntesis se indica el pinout del conector relativo a la versión Industrial PLUS.

PANEL INFERIOR INDUSTRIAL I/O



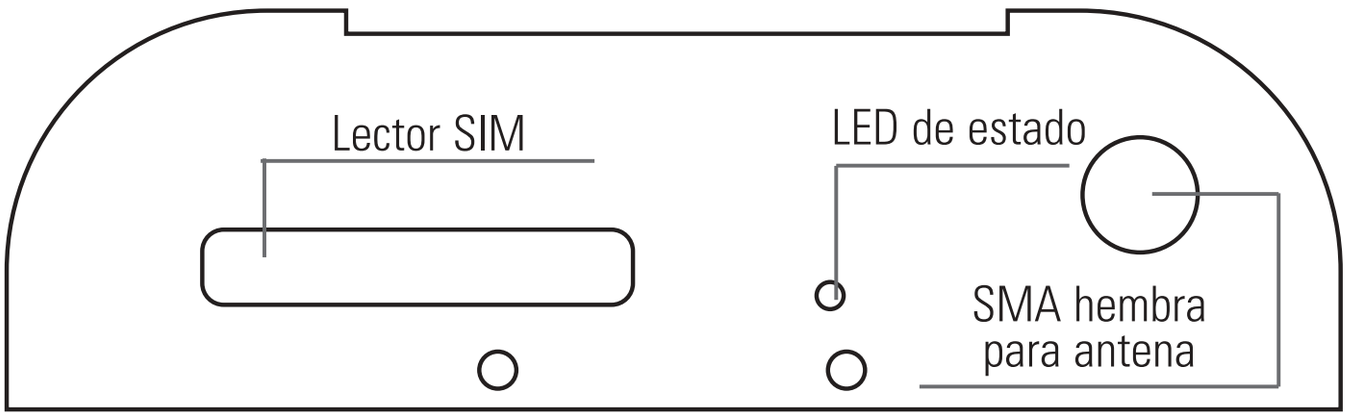
CONECTOR	PIN	SEÑAL	USO	OPCIONES
Bornera 18 posiciones	1	Power IN	Power IN (+)	
	2	GND	Tierra	
	3	SDA_5V	SDA I2Cbus	SPKN
	4	SCL_5V	SCL I2Cbus	SPKP
	5	GND	Tierra	MICN
	6	RTS	Request To Send	MICP
	7	TX	Transmit Data	
	8	RX	Receiver Data	
	9	CTS	Clear To Send	
	10	GND	Tierra	
	11	IN_1 +	Input_1 (+) *	
	12	IN_1 -	Input_1 (-) *	
	13	IN_2 +	Input_2 (+) *	
	14	IN_2 -	Input_2 (-) *	

sigue >>

CONECTOR	PIN	SEÑAL	USO	OPCIONES
Bornera de 18 posiciones	15	OUT_1 -	Output_1 (-) ^	
	16	OUT_1 +	Output_1 (+) ^	
	17	OUT_2 -	Output_2 (-) ^	
	18	OUT_2 +	Output_2 (+) ^	

** Entradas optoaisladas (15-50Vac/dc) ^ Salidas optoaisladas (30Vcc 1A - 10Vrms 350mArms).*

PANEL SUPERIOR



ESTADO DEL LED	DESCRIPCIÓN	TIPO DE MÓDEM
Apagado	Módem apagado o en modo SLEEP	GSM/GPRS
600ms Encendido 600ms Apagado	Ninguna SIM Card introducida, ningún PIN introducido, búsqueda de la red en curso, autenticación del usuario en curso o login en la red en curso	GSM/GPRS
75ms Encendido 3s Apagado	Registrado en la red, Ninguna llamada en curso.	GSM/GPRS

sigue >>

ESTADO DEL LED	DESCRIPCIÓN	TIPO DE MÓDEM
75ms Encendido 75ms Apagado 75ms Encendido 3s Apagado	Uno o más de un contexto GPRS activados	Sólo GPRS
Intermitente	Indica la transferencia de datos GPRS: cuando una transferencia GPRS se encuentra en curso, el led se enciende durante 1 segundo, después que los paquetes de datos se han intercambiado. La duración de la intermitencia es de aproximadamente 0,5 seg.	Sólo GPRS
Encendido	Depende del tipo de llamada. **Llamada voz:** durante una conexión activa **Llamada datos:** durante una conexión activa o intercambio de parámetros durante la instauración o la desconexión de una llamada.	GSM/GPRS

Instalación SIM Card:

- apretar el botón amarillo para extraer la caja deslizante
- introducir la SIM card
- cerrar nuevamente la caja, asegurándose que la SIM esté alojada de manera correcta

***NOTA**: efectuar las operaciones sobre la SIM exclusivamente con el módem apagado*

Antena GSM Dual Band:

- banda: 890-960MHz / 1710-1880MHz
- impedancia característica: 50 ohm
- conector: SMA macho

MODALIDAD DE ENCENDIDO Y APAGADO DEL MÓDEM (válida sólo para INDUSTRIAL PLUS e I/O)

Gracias a la presencia del microcontrolador instalado en las versiones PLUS e I/O es suficiente suministrar alimentación (pin 1 y 2 del conector Microfit de 4 polos en la versión Industrial PLUS o pin 1 y 2 de la bornera de 18 posiciones en la versión Industrial I/O) para provocar el encendido del módem. La simple remoción de la alimentación provoca el apagado inmediato del módem.

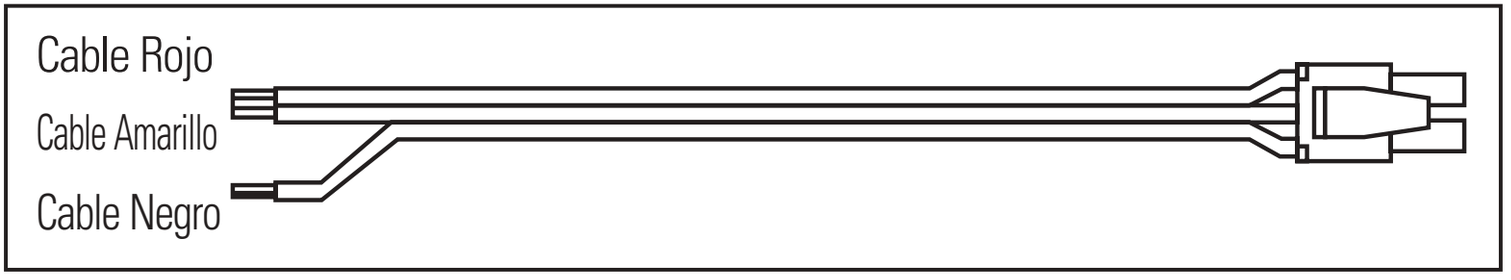
MODALIDAD DE ENCENDIDO DEL MÓDEM (válida sólo para el INDUSTRIAL BASE)

La simple aplicación, sobre el conector Microfit de 4 polos, de la tensión de alimentación (Power IN en el pin 1 y GND en el pin 2) no es suficiente para provocar el encendido del módem. El modo de encendido se puede producir de acuerdo con los dos procedimientos siguientes:

Uso de la señal de Encendido (IGN)

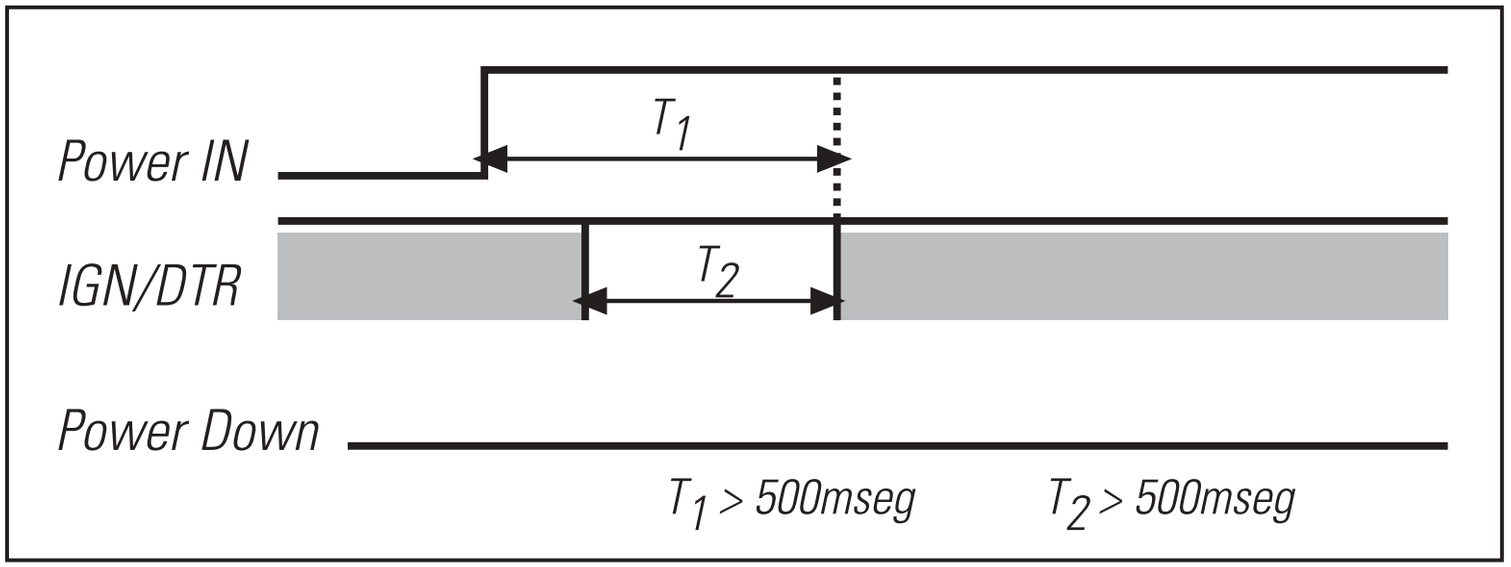
La señal de Encendido (IGN) se debe mantener a un nivel alto, durante un tiempo de por lo menos 500mseg, contemporáneamente a la presencia de alimentación Power IN (véase el diagrama de las temporizaciones ilustrado a continuación).

Por ejemplo, es suficiente conectar, en el cable de alimentación entregado, la señal de Encendido al positivo de alimentación POWER IN (el cable amarillo con el cable rojo). La conexión de los dos cables se puede mantener durante un tiempo indefinido (véase la figura).



Uso de la señal DTR (RS232)

El módem se puede activar de acuerdo con las mismas modalidades vistas para la señal Encendido, utilizando la señal de control DTR presente en la interfaz serial RS232.

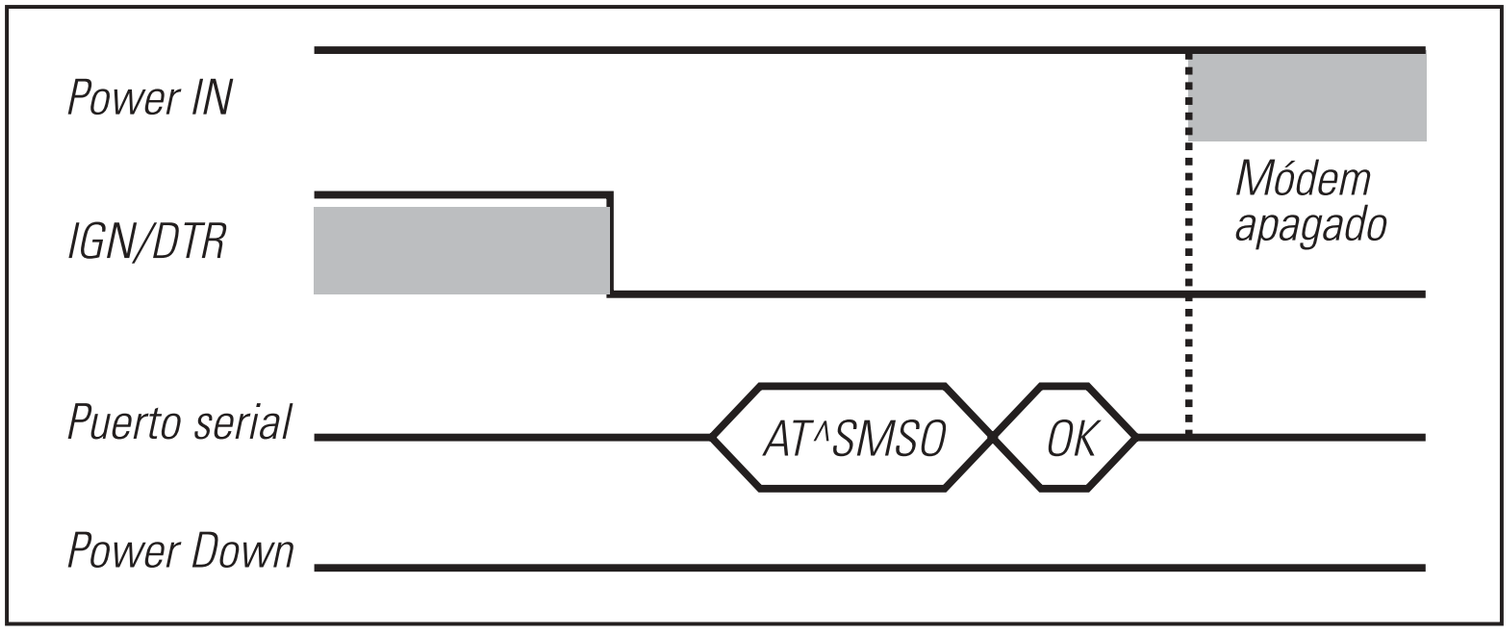


APAGADO DEL MÓDEM (válido sólo para INDUSTRIAL BASE)

El módem se puede apagar de acuerdo con las dos siguientes modalidades:

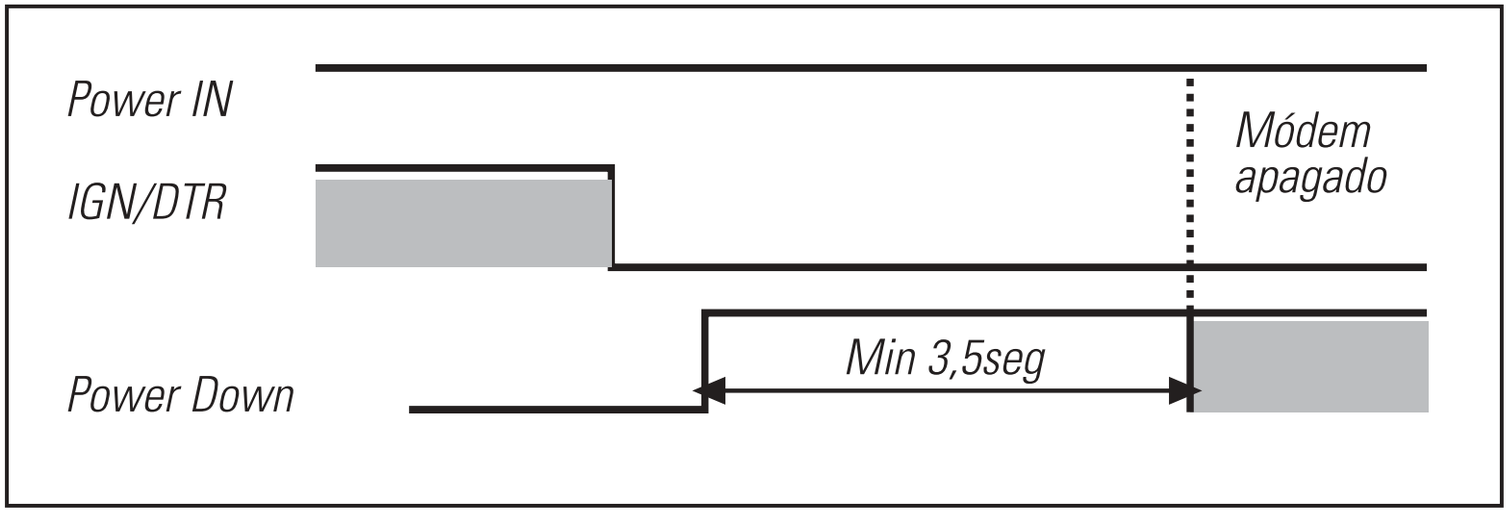
Apagado software

El apagado software mediante el mando AT^SMSO es el modo aconsejado para obtener el apagado controlado del módem (véase el diagrama de las temporizaciones ilustrado al costado).



Apagado hardware (sólo en caso de emergencia)

La señal de Power Down (PDN) se mantiene a nivel alto (IGN/DTR se debe encontrar a nivel bajo) durante un intervalo mínimo de 3,5seg (véase el diagrama de las temporizaciones ilustrado abajo).



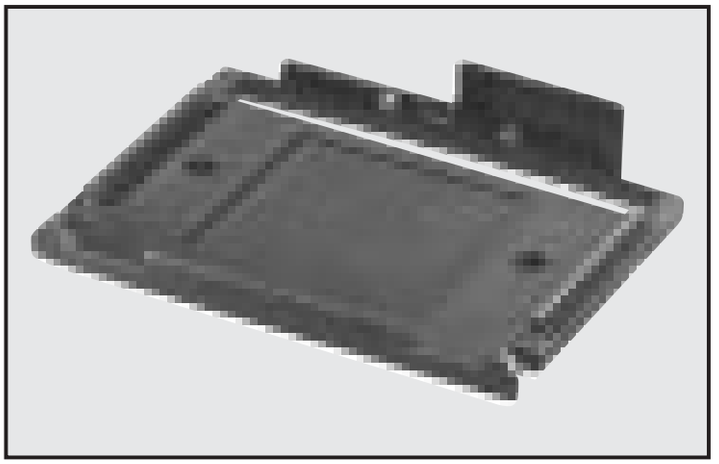
MANDOS AT ESENCIALES

TIPO SERVICIO	MANDOS AT	RESPUESTA MÓDEM	DESCRIPCIÓN
Introducción Código PIN	AT+CPIN=1234	OK	Código PIN aceptado
		+CME ERROR: 3	PIN ya introducido (con +CMEE=1)
		+CME ERROR: 16	Código PIN incorrecto (con +CMEE=1)
Registro en Red	AT+CREG?	+CREG:<n>,0	No registrado; ningún tentativo de registro en curso
		+CREG:<n>,1	Registrado
		+CREG:<n>,2	No registrado; tentativo de registro en curso
		+CREG:<n>,3	Registro negado
		+CREG:<n>,4	Desconocido
		+CREG:<n>,5	Registrado, roaming
Llamada Entrante	ATA (*)	OK	Respuesta a RING en caso de éxito de la conexión
		NO CARRIER	Respuesta a RING en caso de fracaso de la conexión
Llamada Originada	ATD123456; usar (;) sólo para llamada vocal	OK	Conexión efectuada con éxito
		+CME ERROR: 3	Conexión ya efectuada
		+CME ERROR: 11	Código PIN no introducido (con +CMEE=1)
Desconexión	ATH	OK	Desconexión llamada en curso
Memorización Configuración	AT&W	OK	I parámetros de configuración se memorizan
Apagado Módem	AT^SMSO (*)	^SMSO: MS OFF OK	Apagado software del dispositivo

Para ver el detalle de los mandos AT y para ver toda la documentación técnica remitirse al sitio internet de Audiotel

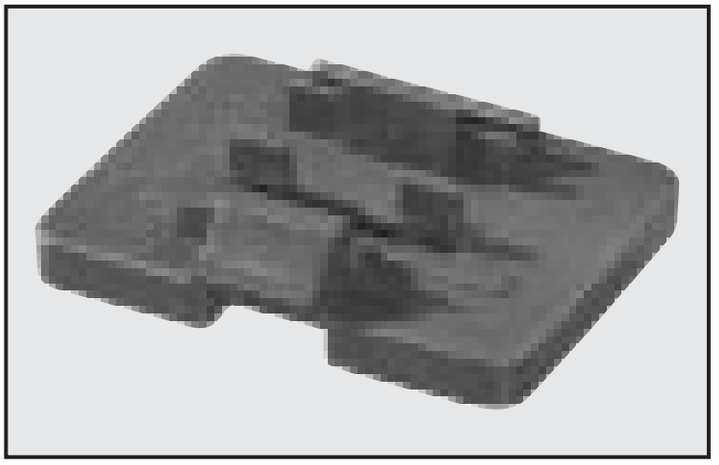
(*) *Mando deshabilitado en el INDUSTRIAL PLUS e I/O*

SOPORTE DE PARED



¡¡¡ATENCIÓN!!! Para desenganchar el módem del soporte de pared entregado, levantar la aleta del soporte (del lado del lector SIM del módulo) y con los dedos (o con un destornillador) quitar el módem hacia arriba delicadamente.
Evitar que el módem efectúe una rotación superior a aproximadamente 15-20° respecto al soporte para evitar la rotura de los dientes de enganche.

ADAPTADOR PARA GUÍA DIN/OMEGA



¡¡¡ATENCIÓN!!! Para desenganchar el adaptador para guía DIN/OMEGA da la guía correspondiente es necesario que antes se quite el módem de acuerdo con las modalidades descriptas aquí al lado, luego quitar el soporte de pared destornillando los dos tornillos de fijación. Sólo entonces se puede desenganchar el adaptador para guía DIN/OMEGA.

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Edizione 3 - Aprile 2003 • *Edition 3 - April 2003*
(Cod. 0808P2B0001E2)

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AUDIOTEL

ATTENZIONE / WARNING / ATENCIÓN:

Con il prodotto **INDUSTRIAL PLUS** utilizzare solo il cavo di alimentazione dotato dei fili ROSSO e NERO. Il filo GIALLO, se utilizzato con INDUSTRIAL PLUS, può danneggiare il prodotto.

Con il prodotto **INDUSTRIAL BASE** utilizzare solo il cavo di alimentazione dotato dei fili ROSSO, NERO e GIALLO.

For the **INDUSTRIAL PLUS** product use only the power supply cable having the RED and BLACK wires. If You use the YELLOW wire with INDUSTRIAL PLUS, You can damage the product.

For the **INDUSTRIAL BASE** product use only the power supply cable having the RED, BLACK and YELLOW wires.

Por el producto **INDUSTRIAL PLUS** utilizar sólo el cable de alimentación que tiene los hilos ROJO y NEGRO. Si Usted utiliza el hilo AMARILLO con INDUSTRIAL PLUS, Usted puede dañar el producto.

Por el producto **INDUSTRIAL BASE** utilizar sólo el cable de alimentación que tiene los hilos ROJO, NEGRO y AMARILLO.

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ERRATA CORRIGE

INDUSTRIAL BASE

CONNETTORE CONNECTOR CONECTOR	PIN PIN PIN	SEGNALE SIGNAL SEÑAL	USO USAGE USO
6 pin MICROFIT	1	SYNC	Sincronizzazione / Synchronization / Sincronización
	2	SPKP	Speaker Positivo / Loudspeaker Positive / Speaker Positivo
	3	SPKN	Speaker Negativo / Loudspeaker Negative / Speaker Negativo
	4	MICP	Microfono Positivo / Microphone Positive / Micrófono Positivo
	5	MICN	Microfono Negativo / Microphone Negative / Micrófono Negativo
	6	GND	Terra / Ground / Tierra

INDUSTRIAL PLUS

CONNETTORE CONNECTOR CONECTOR	PIN PIN PIN	SEGNALE SIGNAL SEÑAL	USO USAGE USO
6 pin MICROFIT	1	GND	Terra / Ground / Tierra
	2	SPKP	Speaker Positivo / Loudspeaker Positive / Speaker Positivo
	3	SPKN	Speaker Negativo / Loudspeaker Negative / Speaker Negativo
	4	MICN	Microfono Negativo / Microphone Negative / Micrófono Negativo
	5	MICP	Microfono Positivo / Microphone Positive / Micrófono Positivo
	6	GND	Terra / Ground / Tierra